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# IOHANNIS WYCLIF

## TRACTATUS

# DE LOGICA.

NOW FIRST EDITED FROM THE VIENNA AND PRAGUE MSS.

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BY

MICHAEL HENRY DZIEWICKI.

VOL. III.

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# INTRODUCTION.

## I. Preliminary Remarks.

With the third volume of *Logica*, Wyclif's first great philosophical work comes to a close. All that should be said as regards the genuineness of the work and its date has already been said in the Introduction to Vol. I, and there is no need to repeat it here. As to the state of the manuscript, a few words may perhaps be allowed. Very illegible from the beginning, as stated in the Introductions to Vols. I and II, it becomes worse and worse, sometimes intolerably so, as it approaches the end. This may account for, and to some extent excuse, the numerous shortcomings of the present edition, which no one can regret more than the editor himself.

I wish to take this opportunity of again most sincerely thanking all those who have aided me in the work; especially Dr. Furnivall, the Founder of the Wyclif Society; and Mr. Matthew, whose notes have more than once been of great service.

The two chapters of Wyclif's book which make up the present volume were also copied as separate tractates. The last chapter, however, dealing with time, is quite distinct from the treatise *De Individuacione Temporis,* not yet published. Before entering into a detailed examination of the contents of these two chapters, I think it advisable to notice several matters of importance which may strike the reader on a perusal of the whole.

## II. A General View.

It is useless to deny that in many respects this third volume of Logica will be found unattractive, especially by such as have not made

a study of works of the kind. The wild boldness of the conclusions reached, the impossibility of conceiving what Wyclif himself declares over and over again to be beyond the scope of mathematical speculation, although it deals with Space and Time; above all, the strangeness of Wyclif's standpoint, so foreign to all our modern ideas of Natural Philosophy — will often, no doubt, confuse the reader, and lead him to pass over unnoticed the many excellent qualities, both of subtlety and of depth of thought, with which this volume abounds. I myself, though long engaged in the preparation of this edition, thought at first that the two tractates on Space and Time were merely side-issues that might have been lopped off from Wyclif's philosophy without disadvantage to the whole. But on further consideration my opinion has been very much modified. His theory of Time and Space appears to me now as a logical result, partly of his Realism, partly of his doctrine concerning *maxima* and *minima;* and this same theory is, I think, the root from which his doctrines on the Eucharist necessarily sprang. It is thus essentially linked with his fundamental doctrines; but it is at the same time a link, indissolubly connecting them with the further developments of his theological ideas.

When Wyclif affirmed the objective reality of all universals, he at once encountered a considerable difficulty in dealing with the phenomenon of extension. Nominalists, if consistent, say that not only points, but lines, surfaces, and even volumes, are all *entia rationis* — mere figments of our mind. For a volume is a Universal — One in Many — containing an infinite multitude of surfaces; a surface, again, is the universal of the line; and the line is in like manner the universal of the point. And for the same reason that they denied this reality, Wyclif was obliged to maintain it. As to points, they must be real things too, though not universal, since the line is nothing more than a series of points, and is made up of them: at all events, being something in that which is real, they must be real too. Now, as we have seen in the two former volumes, Wyclif abjures the doctrine of the indefinitely great, and roundly asserts that there is a maximum and a minimum for all things. A maximum of size: therefore space is not absolutely infinite, but only relatively so — relatively *to us*. There is also a minimum of size, which of course is the point. Now, what are those real countless points, which fill all space, and of which all space consists? They are surely not

spiritual. But, if material, how can material substance coëxist in the same space as they? We have to explain how the world fills space, which is already filled by these punctal realities.

The answer, however bold it may seem, is but the outcome of the difficulty just stated, working in Wyclif's mind, already imbued with the doctrines I have mentioned above. Matter is made up of atoms, each atom consisting of a number of points, really distinct from one another, really without length, breadth, or thickness, and yet really touching each other. One point cannot make length; two begin to make it; their essence is to have position of their own, and so, though they touch, they do not coïncide. This non-coïncidence is the beginning of length. Two points do not make a surface, but three do (inchoatively) if the third is not in a line with the other two; and this is the beginning of the plane, and indeed of all surfaces whatsoever. A fourth point not in the same plane as the other three would be the beginning of volume. Such are the primordial atoms, which correspond to every point and in fact *are* every point in space, for no vacuum is possible. And, were there any real difference between the reality of mathematical and that of material points, they would clash together. In short, mathematical points are real and material; therefore, there can be no others. Co-penetration, Wyclif asserts, is an absolute impossibility.

If then a vacuum is inconceivable, and space is the same thing as matter, it follows that, beyond the circumference by which our universe is bounded, there is no space at all, and that the conception of a straight line, indefinitely producible, is but a contradiction in terms. The world being the greatest amount of matter possible, nothing greater can exist; nor can its size be diminished, for then it would no longer be the greatest possible.

Here we come to the point where this development of Wyclif's Realistic doctrines comes in contact — if not in conflict — with the dogma of Transubstantiation. If the size of the universe cannot be diminished, is the annihilation of any part of it admissible? Certainly not. Besides, to each of those points of which the universe consists, it is essential to have position somewhere; to annihilate one single point would be to take away, not only its existence, but its very essence too; or in less Scholastic terminology, it is as impossible to annihilate any portion of matter as to think away a part of space, which, when once

created, is absolutely necessary. A further proof is in the impossibility of a vacuum: if a piece of bread be annihilated, what remains in its place? Nothing thinkable; and, therefore, annihilation is unthinkable too.

Wyclif is thus forced to deny that anything can be annihilated, even by Almighty Power, *even absolutely considered;* and here we see the profound difference which separates him from the general opinion of Scholastic philosophers and theologians, who distinguish between what is possible to Omnipotence, irrespectively of God's other attributes, but are not all of one mind as to whether annihilation is absolutely impossible. They would willingly grant the truth of Milton's lines in the second book of Paradise Lost:

. . . . How He can
Is doubtful; that He never will, is sure.

But Wyclif has no doubt at all on the matter.

Now, in the doctrine of Transubstantiation, it is affirmed that the bread *ceases to exist.* This (though some Doctors of great note, Aquinas amongst others, explain it in a different manner) certainly seems to point to annihilation, as was very probably admitted by Wyclif's Nominalistic opponents. At any rate, the assertion that the whole substance of the bread ceases to exist at a given instant — both as to its substantial qualities and the underlying substratum of those qualities — could, in Wyclif's system, be understood only as the annihilation of the atoms of which it consists. This had to be denied. The bread, it was affirmed, ceased to exist *as bread;* in its place there remained a body that Wyclif (no doubt out of respect for the dogma which he still seemed to admit) called a *corpus mathematicum.* I say, 'still seemed to admit'; for, as we have seen, this *corpus mathematicum,* quite orthodox enough in the ordinary sense of the words, is nothing else but the atoms, or mathematical points, of which the bread consists, just as they were before. Any one who will read p. 137 of the present volume will, I think, be convinced that the successive stages of Wyclif's opinions in this matter, as given by Wodeford (see *De Benedicta Incarnacione, ed.* Mr. Harris, *Int.* IX.) were successive only in the mode of expression, not in the thing itself. The same *esse,* he says, which was previously that of bread, becomes sacramentally the Body of Christ. True, he also says that it does not remain bread after consecration, and explains himself no further; but the indestructibility of the bread-atoms has already been

posited. They are the subject of the accidental qualities which we perceive; and though Wyclif calls them a *corpus mathematicum*, they are real objective existences, and not the atoms of Christ's Body. That Body, as I pointed out in the Introduction to *De Apostasia*, is present there as a symbol — and is therefore really present with the reality of a symbol — but not otherwise. Is not this in substance the very same theory that Wyclif expounds in his later works? There is indeed a complete change of language and style, though even so late as in the tractate *De Apostasia*, he continues to employ the term transubstantiation; but here, even from the very outset, he refuses to admit that anything in the physical substance of the bread has been changed.

Such are the most important points in this third volume of Logica; their bearing both upon what preceded them and what followed, justifies me, I think, in setting them before the reader in connected form. Here and there, we also find certain other allusions, paragraphs upon necessity and free-will, a word or two against the abuse of ceremonies and the excess of riches in the Church, and other signs which show what was already fermenting in Wyclif's mind; but they are mere side-issues, and not (so far as I can see now) essentially connected with his system. They will, therefore, be more advantageously considered in their place, as we go on to the detailed examination of the two last chapters of Wyclif's Logica.

## III. Analysis of the Work.

### *a)* Chapter IX.

#### Short Summary of the Contents.

*Local propositions (p. 1—11). Movement defined and divided (p. 11—27). — Other divisions of movement (27—30). — Is the Continuous made up of points? Arguments* pro *(30—35). — Arguments* contra, *drawn from Aristotle's authority (35—38); from geometry (38—63); from physical science (63—70); from theology (70—74); and from the fact of chemical combination (74—85). — What is the measure of the velocity of motion? Wyclif's opinion (85—87). — General arguments* contra *(87—100). — Astronomical objections (100—111). — Of Augmentation (111—116). — Difficulties (116—118). — Of Alteration (118—121). — Objections refuted (121—132).*

*Local propositions.* Place may be taken to mean merely position (1). The world consists of atoms, cannot be increased nor diminished in size, nor moved, nor changed in shape. The whole of space is the whole world; partial spaces are made up of points. To each point corresponds a place, which is fixed, whereas the points are all movable, and may enter it, one after the other (1, 2). It is a mere relation of distance from the poles and the centre of the world (3). The universe is the common place of everything; yet each of its parts has its own partial site (3, 4). Two bodies may thus be in the same place in one sense, and in another, in quite different and separate places (5). Site and situation are not identical, except at the poles and at the centre (6). Position depends upon the distance of anything from the centre (6, 7). Animals, like the world, have in themselves these differences of position: above, below, back, front, right and left (7 – 11).

*Movement defined and divided.* Movement is the 'form', or perfection, by which the mobility of a mobile becomes actualized; local movement is but one of its many divisions (11). Local movement implies a mover which is other than the thing moved; this leads us to admit a First Motor, motionless, indivisible, everlasting (12, 13). Local movement may be straight, circular, &. (14, 15). Can we say that the same body has two different movements at once (16—18)? Not according to strict logic; but one movement may be considered as the combination of two others, and rest, as the result of two equal and contrary motions (18—23). Every change which makes a body to differ from what it was, deserves to be called movement in a wide sense; and in a sense still wider, the activity of the intellect and the action of God upon His creatures, is movement (24). The swiftness of the movement of a body is represented by the space it would pass through in a given time, if not prevented. The impediment only counteracts the external effects which movement tends to cause, and therefore must count for nothing, even when so great as totally to destroy the effect (25). Supposing the sun to have a retrograde movement on the celestial sphere as rapid as the forward motion of the sphere itself, there would be no apparent motion of the sun from east to west, though it would move from north to south (26). Wyclif here alludes to the fact that the sun is higher in the sky in summer than in winter. The effect of which he speaks would be produced, in the language of modern astronomy, if the earth, whilst

continuing to revolve round the sun, ceased to rotate on its axis. The sun would be for ever in the same meridian; but in summer it would be seen higher in the sky — that is, nearer the North Pole; — in autumn, it would go lower — that is, nearer the South Pole — until it disappeared beneath the horizon for six months. This supposition aids Wyclif to explain the sun's yearly apparent passage through the signs of the zodiac, by imagining an eastward movement, which in some unknown manner is delayed to the extent of about one degree every day; while the sun's position in the sky changes at the same time from North to South, or vice versa.

*Other divisions of movement.* Wyclif here deals only with local movement, uniform or varied; and if varied, varied either in itself or in its subject. If the world revolves with a movement that seems uniform, each part of the world turns round with a different degree of rapidity, except at the poles, where the movement is *nil*. All these various rapidities of movement may at once be predicated of their one subject — the world. It thus at the same time moves faster and slower than itself: which of course, with the above explanation, is evidently true. Wyclif goes farther, and asserts that the motion of a part may be equal to, though less than, that of the whole; notwithstanding that this admission lends a handle to sophistical objections. A movement smaller in velocity [1] is equal to the whole movement in duration. The circular movement of a part of the world near the poles is much less rapid than at the Equator; yet both take place in 24 hours (28). Movement is again either uniformly or variably varied; and once more the old mediaeval distinction

[1] *In velocity*. The assertion that a part of any movement is equal to the whole is explained in the text by the distinction: *quoad molem — quoad duracionem*. I find it difficult to understand. The sense, as I give it above, does not, I confess, agree well with *quoad molem*; it ought to be *quoad velocitatem*. But we might understand the words thus: Movement in one atom only (a part of the whole movement *quoad molem*) is equal to the movement of the whole body moved. But then, why does Wyclif use the words *quoad duracionem?* They ought again in this case to be changed for *quoad velocitatem*. I think that the explanation, as given above, answers better to the general drift of the argument. Either way, we see how may be maintained that a partial movement is equal to its whole. — I may here, by the way, repeat what I pointed out in the Introduction to Logica, Vol. II, viz. that I in this analysis often introduce comparisons or remarks of may own, in order to clear up what is not clear, or to reconcile seeming discrepancies.

of movement 'varied in the subject' comes in. Movement variably varied may be so in infinite manners, and endless new species of movement are thus conceivable. At this stage of the enquiry, Wyclif proposes three questions; the first, dealing with succession, is to be solved in the following chapter; the second concerns the Continuous, and the third, the measure of velocity of motion, and will be answered here (29, 30).

*Is the Continuous made up of points? Arguments* pro. — If the world consists of atoms which in their turn consist of indivisible points,[1] how can we explain the existence of the Continuous, which is indefinitely divisible? How can the Extended be made up of elements which are in no wise extended? But Wyclif says that it must be so, and gives seven arguments to prove it. — 1. The intrinsic cause of anything is necessarily a part of that thing; now points *cause* lines, lines surfaces, and surfaces volumes; thus points are parts of space, and it is ultimately composed of them. — 2. Either points are not, or they are, parts of lines; if not, all the points in a line could be taken away without shortening it: a manifest absurdity. — 3. If two bodies touch in one point only, we have two points which touch one another, and yet are distinct (as belonging to different bodies); that is, they are not in the same place. So we see that 'to touch' does not mean 'to coïncide', and the possibility of space consisting of contiguous points is saved (30, 31). — 4. An instant is to divisible continuous time what a point is to a divisible continuous line; but one instant is not identical with the next immediately following it: consequently, neither is one point identical with another that it touches. And if so, the point is, not the negation, but the element of the Continuous (31). — 5. A mobile, passing through two surfaces that touch — air, v. g. and water — will pass one *after* the other, and touch each of them at two indivisible instants of time, distinct, though not separated by any interval. Other suppositions lead

[1] Boskowitch's theory of indivisible points — mere mathematical centres of attraction — which is well-known to the philosophical world, would seem somewhat similar to that of Wyclif. But there is an enormous difference. Boskowitch's atoms *do not touch*, they cannot touch; they act upon each other with attractive and repellent forces through a perfect vacuum. Thus his theory, though lying open to other objections, cannot be assailed by those which Wyclif here undertakes to refute.

to the same conclusion (32). — 6. There are days and nights but one instant long (as at the poles). These days and nights are part of the continuity of time, and yet are distinct from the rest of it; therefore they are real parts, which make up that continuity. And if Time is thus composed, it is easy to show that space is composed likewise (33). — 7. If God, by His almighty Power, created a series of substances each the size of a mathematical point, and placed them side by side throughout the whole of space, we should have continuous extension; and nothing can be brought to prove that what is possible in this case is not a really existing fact (34). — Throughout the whole of these arguments, our author seems at times to take the idea of the absolutely inextended point — the Nothing of Space — and at others, that of a line divided by "a quantity that has increased beyond all measure". The latter, according to modern mathematicians, is not absolutely without length; only its length is shorter than the shortest line conceivable. Such infinitesimal magnitudes would indeed be factors of the line; but would they agree with Wyclif's conception of the point, as an absolute minimum of bulk? The line A, divided by $\infty$, gives $\frac{A}{\infty}$; but 2 A, divided in like manner, gives $\frac{2A}{\infty}$; the second quantity is mathematically double of the first. But I leave these considerations to such as are versed in a science which, since five hundred years, has made such progress as Wyclif never dreamed of.

*Arguments* contra: *Aristotle's view.* — The difficulties which surround such a system are of course great and manifold. Aristotle seems against it; for instance, when he says that the Continuous is infinitely divisible. But, *a)* Aristotle speaks of that which is continuous to our senses; and that, so far as our senses can tell, is indeed made up of innumerable parts. But though infinite for us, they are not so to God. And, *b)* Aristotle distinctly says that the point is the cause of the line; if so, it must be its element, and this *dictum* is quite in Wyclif's favour (35). The doctrine of indivisible points transcends both our senses and our imagination. Geometry has nothing to do here, these points are beyond geometry; physics are out of court, they belong to metaphysic. God alone knows how many points go to form a given square, but their number is not infinite to Him (36). The word 'Infinite' is used to denote

all that goes beyond our power of conception, even though the thing be not infinite in itself. A number, therefore, which is infinite to one man will be finite to another; and none is infinite to Divine Intelligence. This evidently flows from Wyclif's conception of *maxima* and *minima*. There is a fixed number of all things — even of the points in a line — which, infinite to us, is finite to God; and no straight line can be infinitely long (37, 38).

As this conception of the Infinite may give rise to the inquiry how far our author is in agreement with the majority of Scholastic philosophers, a short digression is not out of place here, and I shall proceed briefly to state the points on which there is the least contradiction among Schoolmen in this matter.

The Infinite means 'that beyond which nothing greater can be conceived', whether by human thought, or by any other intelligence, however perfect. If no substance or being can be conceived greater, it is the Absolute Infinite — God; if no accident, then it is the relative Infinite — of quantity (multitude or magnitude) or of quality. The Infinite cannot be made up of finite parts; it is not the mere negation, but the negation of a negation, and thus has a positive meaning. Infinite magnitude of matter is impossible; so is an infinite number, an infinite multitude, and a movement infinitely swift. Infinite imperfection or *badness* is also inadmissible; for it would totally destroy any substance in which it inhered; but qualities that denote nothing but perfection, such as force, life, duration, &c. must be admitted in God; in the human soul too, but only from a certain point of view, "secundum quid". This Infinite "secundum quid" is in general predicated of that which is finite in every sense but one; as, e. g., the two halves of an infinite line, or of infinite space. In this sense, and *from the point of view from which it is finite*, one infinite may be greater than another. — Clearly the term, as employed by Wyclif, has quite another meaning, unless when he applies if to God.

*Objections based upon geometry.* — If Wyclif's theory be true, then the number of points is the same in two lines, one of which is double of the other. For two mobiles, passing over each of them, one double as fast as the other, correspondingly to the length of the lines, will go over them in the same number of instants, and therefore that same number of points will be passed in that time. The difficulty is solved

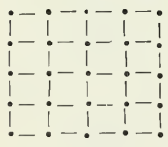
by denying that at each instant of *any* movement one point is passed over; it is the case only for the swiftest movement possible, that of the 'equinoctial point' in the sky (38, 39). — It is true that such an answer does away with all really continuous motion, except for the said point: during any slower movement from A to B, the mobile C would be at rest in a multitude of points; and thus rest would be identical with movement. But movement may appear to be continuous, though it is not really so; a succession of very short motions, interspersed with rests, will give us the feeling of continuity. As a fact, our senses often mislead us; as, for instance, in certain phenomena of sight, and in the vibrations of which sound consists. If the most rapid possible movement is at the rate of one point per instant, it follows that the world cannot be larger than it is; for if larger, it would revolve more rapidly, and that is impossible: a confirmation of what has been proved elsewhere and otherwise (39, 42). — "But if the apices of several pyramids touched, they would be *in the same place*, and thus coïncide." This is merely begging the question. If a point has position of its own, it cannot be in the same place with another. — It is said that in Wyclif's system each point must touch an infinity of others; which leads to difficulties. But this is denied. Six points only touch a seventh placed in their midst. Thus in certain directions one cannot go immediately from one point to the next; their position follows certain fixed rules, somewhat like the grain in wood, or the lines of cleavage in crystals. A line drawn from one point to another which it cannot touch directly, only by means of a third, is nevertheless not bent; for it is as straight as a line can possibly be. To say, the point A touches B, and B, C; therefore, A touches C, is a sophism. All this is indeed unimaginable; but we must go beyond imagination when we have to deal with the *Inextended*. And at any rate, Nominalists have no right to argue at all in the matter (42—46).

Here Wyclif enters into a series of explanations on the different senses given to the words *point, line, surface* and *angle*, and he expounds what he conceives to be Euclid's meaning. An angle may mean either its apex, or the space which it encloses; two very different things (46—49). But the adversaries point out that either an angle is indefinitely great; which Wyclif denies, affirming that any angle is complete in its apex (49, 50); or that any number of angles, small and great, may coëxist at the same point; which is granted as a harmless

conclusion (50, 51); and that our author's system would imply the denial, not only of Euclid's definition of angles, but of the whole of his treatise on the subject. (Here, by the way, we may note how quietly the trisection of an angle is taken for granted "secundum doctrinam prime Vitulonis", i. e. Vitellio, the famous Mediaeval mathematician and optician "que docet angulum rectum datum in tres partes dividere", whereas all mathematicians are at present agreed that such trisection is impossible. As, however, I have not been able to get a sight of Vitellio's works, though living in the very city in which he wrote them,[1] I am not quite sure that what he teaches is anything more than a mere practical way of dividing an angle into three parts, without any claim to absolute exactitude.)

Wyclif replies that, as regards Euclid's definition of the angle — the meeting of two lines — this is merely a genetic, not an essential definition. Euclid indeed says what causes an angle; but that is not the angle itself. As to the rest, the answer is ready: Euclid's theory concerns only sensible angles, not such as are found amongst points which touch; such, for instance, as form triangles which have sides only two points long, and of which the apex is an angle which cannot be bisected, &c. — All this cannot be imagined, and should, therefore, be denied from a merely geometrical point of view (52, 53).

We come now to what is perhaps the strongest mathematical objection to Wyclif's system. According to him, points are placed as follows, in a small square of say, 25 points only; I have added the connecting hyphens in the subjoined figure to show which points touch, and which do not touch. As is seen, the points on the diagonals do not touch directly, and there are no more points on the diagonal than on the side of a square. This, true for the given square, all but infinitesimally small, will also be true for all greater ones; and thus the diagonal of any square (containing an equal number of points) will be equal to its side, the greater to the less: which is absurd (53, 54). — Wyclif's reply admits as an evident fact that the diagonal of a square is longer than its side. But when he comes to the statement that parallel lines,



[1] I asked for a copy of Vitellio's works at the Jagellonian Library, Cracow, but was informed that they had been lent to a gentleman who lived a good distance away.

drawn from the sides and perpendicularly to them, touch the diagonal at only one point, he denies it. If it were so, the diagonal would be only as long as the side. Each parallel intersects the diagonal *at several points;* and this accounts for the greater length of the latter line. It is absurd to suppose that two lines which intersect at a very acute angle do not touch by more points than when they are perpendicular; or that these parallels would no longer be straight after intersection: the touching in several points does not change their direction. This somewhat risky answer is supported by the assertion that the ultimate squares (consisting of two points each) are beyond the scope of geometry; also by some remarks concerning the position of points relatively to the poles of the world (55, 56), which I, not clearly seeing their relevancy to the subject, prefer to pass over. But I think it is at this part of the book that we get nearest to the weak point in Wyclif's system: viz. that two points which touch, i. e. which are at *no* distance from each other, are yet *not in the same place.* I at least can find, even in thought, no distinction between *distance* and *difference of place.*

Wyclif comes to the conclusion that God alone knows what the real proportion of the diagonal of a square to its side is; for it depends on the number of points touched by all the intersecting lines parallel to that side. Geometry may perhaps be true only hypothetically; it can prove that the proportion $\sqrt{2}$ exists in the whole diagonal, but not that it exists in every part of that line (57). The admission that in every line there is a certain number of points, of course implies the denial of all incommensurable quantities; that is, absolutely incommensurable, though for us and to our way of thinking, they are so: for in every such case the numbers are infinite to us, and we cannot tell whether they are odd or even (58—60).

Another perplexing question concerns the shape of the smallest figures possible, which consist of a few points only. Are they circles, triangles, spheres, pyramids, or what? They may be maintained to be either any or none of these, and it does not matter, since they are unimaginable realities in their extreme smallness. We cannot even conceive them distinctly by the intellect, at least in its present state of union with matter (60—63).

*Objections based upon physical science.* — Rarefaction (and condensation too) would be impossible in such a system. For if the whole

of space were filled with indivisible impenetrable atoms, should anything increase in size, the whole universe would become larger than it can possibly be. Yet rarefaction must be admitted; and a like argument has the same weight as regards condensation. Wyclif, in his reply, at once declares that he does not admit the possibility of a body occupying more or less space without gain or loss of matter. Rarefaction, therefore, and condensation also, are denied in this sense, but admitted in another. On account of the accession or the removal of another body, a substance may *seem* to increase or diminish in size; as, v. g., smoke seems to spread itself out and fill a room, whereas it is in reality mixed with the air. This is the only sense in which rarefaction is possible, and it answers all the objections. We neèd not follow our author through the mazes of Mediaeval physics which he threads, nor inquire whether this view would destroy all difference between the elements of fire, air, water and earth (63—70). Wyclif ends by stating, as his opinion, that the compenetration of two bodies is an utter impossibility. This conclusion evidently flows from his doctrine. Two points, having no dimensional qualities — nothing but position — would, if they coïncided, lose even that essential quality, and be nothing at all. But it raises grave theological difficulties; for the School generally admits that God's Omnipotence can make two bodies occupy the same space.

*Objections drawn from theology.* Since spiritual forms, having more perfect entity than matter, can occupy the same space with it, then *a fortiori* matter can be coëxtended with matter. Besides, the glorified bodies of the Saints possess the gift of subtlety, i. e. of passing through matter; which seems to imply compenetration. — The answer is a repeated denial of its possibility (71). The gift of subtlety, bestowed on glorified bodies, is somewhat perplexing; but there are various ways of explaining it without admitting compenetration (72, 73).

*Objections drawn from chemical combination.* — If every punctal atom is and remains eternally the same, then the elements would remain in their compounds; size would be made up of that which has no size, and movement of what is not properly movement, as one point passes *instantaneously* into the place of another. — The first of these conclusions is granted by Wyclif, though the question itself was, during the whole of the Middle Ages, a battle-field for the rival sections of the School. The Thomists maintained that in all chemical combinations,

as distinguished from mere mechanical mixtures, the elements do not exist any longer actually, but only potentially; that is, they may, under certain circumstances, again be extracted from the compound. Their position, as given in their text-books of Philosophy at the present day, is that in a mere mixture — of hydrogen and oxygen, for example — both elements, though mingled together, do really and actually exist; but that as soon as the mixture is exploded they no longer exist in the compound — water — except in this sense, that the water may be analyzed into its constituents. Of course, so long as it is not possible to show them the atoms coëxisting side by side, they are free to maintain that their existence is only potential. But, even during the Middle Ages, the Scotists protested loudly against such an assumption, of which nothing could prove the truth.

Wyclif takes the side of the Scotists, as he was bound by his system to do. He gives us a disquisition on the conditions necessary to chemical combination, which seem to be almost the same as those now posited by modern science (74); and then he observes that Aristotle's assertion of the non-existence of the elements in a compound ought not to be taken literally. Even Averrhoës' position, viz. that they exist, but with less intensity of being, would be contrary to the system of inextended points; compenetration being impossible, nothing can interfere with their intensity of existence (75). With yet greater decision he opposes the hypothesis of merely potential existence. If the reason that there is a form which unites the elements in one compound (making the elemental forms to exist no longer) were valid, then in a human body, of which the soul is the form, nothing would remain of the body but its primal matter; and that body, so complicated in all its parts, would be simpler than an element (76). It may be worthy of remark that this conclusion, strange as it may seem, is even now admitted and taught by that branch of Neo-Scholasticism which adheres strictly to the teaching of St. Thomas. When the human form, or soul, departs, what (they are asked) takes place in the body? Do not all the elements exist in it again? And if they exist there at once with all their differences, can it be that they were only potentially there before? The answer given is that after the soul's departure, a new, but transient form comes to give being to the body; it is called the cadaveric form, *forma cadaverica*, and precedes the various forms of decomposing matter, which succeed

each other until the final evolution of the elements. All this time the elements were *in potentia — remotissima, remota, proxima;* then *in actu primo remoto, in actu primo proximo,* and at last *in actu secundo.*

Wyclif continues to urge the point against his adversaries. If we *get* the elements out of the compound, they must have been there before; and many instances go to prove that they actually exist there; for instance, the phosphorescence of fishes' scales in the dark is attributable to the actual existence of fire (77). And as a fact, we find in combinations the same qualities as were before in the elements; or if not, a mean between them; or their reaction in the compound may even produce a quality. There is no need to suppose that the former qualities are destroyed because they do not appear (78, 79). I have added the last clause as the answer of such philosophers as dispute with the modern Thomists, who point out that carbon, hydrogen, and nitrogen are harmless, and that prussic acid is a violent poison. The poisonous quality is merely the reaction upon each other of various qualities of the three component elements.

To this the adversaries reply that such a compound would be but a mere aggregate of atoms 'which a man that had the lynx's eyes might see separate'. Wyclif's answer is that of the modern chemical school; they are not mere aggregates: *what differentiates the compound is the relative position of one atom to another (80).* But, it is urged, if the elemental forms are everywhere in the compound, the superadded form *of the compound* must be nowhere. Wyclif replies that this form is everywhere in the whole, and to a certain extent, indivisibly so, being less material than the elementary forms. There is something of the universal in these higher forms, which exist partially in each atom, considered as part of the compound (80—81). — One last difficulty. In this system, the whole world is one being; and one only, since all points touch, from the centre to the extreme point where space ceases to be possible. — It is quite true, answers Wyclif, that the world is one being; but it does not follow that everything in the world is one. One being may be separated from another by a third. Continuity does not mean sameness of nature. Every part of the world joins in and aids the harmonious action of the whole; all things are made for man, and it is for that reason that all the elements concur to form his organs of sense, and

that some of them predominate in certain of the elements, and others in certain others (82—85).

*What is the measure of velocity of motion?* — Not, says Wyclif, the space gone over by the mobile in a given time. This seems paradoxical; but an example, given directly afterwards, shows that our author is thinking, not of the distance in length, but of the whole surface gone over. A large body and a small one, though moving with equal speed, will go through very unequal spaces in the same time. What measures the motion of any body is the point of maximum swiftness, which in every case must exist, and must exist somewhere at the surface of the moving body; there is also a point where the movement is reduced to a minimum, but Wyclif, somewhat unaccountably, restricts this proposition to living beings that move (86). Now the measure of velocity of a body is the line described by the point which moves fastest (87, 94).

*General arguments against Wyclif's position.* — The First Mobile, being the outermost sphere, and having no space beyond it, can describe no line at all; planets have many movements, and no point can be said to describe them all at the same time. Again, if we suppose a given length passed over in a given time, this may be done by mobiles of infinitely varying velocities, which would all have this length and time for the measure of their respective velocities. And we can conceive the case of a body continually losing its swiftest point by the very fact of its movement: which would refute the assertion that every mobile must have such a point (87, 88). This last objection is urged, from p. 89 to p. 92, in a long argument which I have been utterly unable to follow. Wyclif then points out that the reason for which some deny the general idea of movement (abstracting from its rapidity, and allowing a general measure of velocity for the whole mobile) is in reality the doctrine of Nominalism. Nominalists do not want to admit a universal idea of movement which exists even in bodies at rest, when acted upon by contrary forces (94). The movement of a body is as swift as that of its swiftest part; this swiftness is the measure of the whole (*ib.*). As to the objections, that of the First Mobile has no value whatever. What that sphere describes may not be formally called a line, but it is equivalent to a line. Planets have not many movements, but one which is tantamount to many (unus motus, habens racionem diversorum motuum) (95). If, in the last case, the point of greatest velocity is continually lost, a new

one is continually brought into being; take the velocity common to each of these at each instant, and you get the speed of the whole (96).

Here comes a curious passage, in which Wyclif is led to state the exact rapidity of the swiftest movement possible, viz. one point per instant. It seems to us that, in continuous movement, whether slow or quick, one point — an infinitely small distance — is always passed over in the infinitely small interval of one instant. This is denied. In all movements which are slower than that of the Equator of the First Mobile, we have two, three, four . . . . instants during which the point is motionless, and then passes instantaneously on to the next place, which is infinitely near (97—99). In all these remarks, and elsewhere, as the reader will doubtless perceive, there is a dim perception of the non-equality of infinitesimal quantities; but the state of Mathematics was not then sufficiently advanced to foster the idea, and Wyclif himself, though far in advance of his time, was more of a metaphysician than of a mathematician. His conception, if carried into the field of pure Mathematics, might possibly have had good results; understood in the Realistic sense, they came to nothing.

A logical quibble about the possibility of instantaneous change (whether, between the instant of changing and that of having changed, there is any interval) brings our author to a short digression upon death, which takes place in two instants. In the first, the man dies; in the second, he is dead; for we cannot say, *he is dead* at the instant when he dies, nor *he dies* at the instant when he is dead. Other writers would say that the instant of death is the same in both cases; but viewed from different standpoints: as the end of life, and the beginning of non-life. This, Wyclif says, is impossible (100).

*Astronomical objections.* — The assertion that the Equator alone moves one point per instant is beset with many difficulties. The First Mobile is a perfect sphere; its movements therefore ought at all points, and not only at the Equator, to be uniform. But every point in the First Mobile does not touch every other: so the smaller circles, making a shorter journey in the same time, will not require to move so fast. The circle tangent to the Equator has but one point fewer than the Equator; performing its journey in the same time, it will remain immobile for one instant, to make up for the missing point: which of the points is missing we need not enquire. — The Poles belong to the great circles,

perpendicular to the Equator, i. e. those of which the curvature is the smallest; at the same time each of them forms the smallest possible of circles — a point — parallel to the Equator, and of which the curvature is the largest. Which of these curvatures belongs to that punctal atom which is a pole of the world? Wyclif, noticing that the difficulty would tell against his adversaries no less than against himself, solves it by denying that any one circle is more curved than another; in each circle every point of the circumference is equally distant from the centre. — If the Equator consist of tripunctal atoms, it cannot be a circle. For these atoms do not form a curve; they are either in line or make up a triangle; in either case, there is curvity. Wyclif answers that, being points which touch each other without any distance between them, they form neither a triangle nor a straight line. Geometry is only seemingly against this, because such things are conceivable by the mind alone, not by imagination. That science cannot give us absolute exactitude (100—111).

*Of Augmentation.* — Leaving the questions concerning local movement, and coming to the movement by which, without changing its place, a body increases in volume, Wyclif points out that augmentation, strictly taken, means only the increase of an animated being, caused by nutrition and by the assimilation of food (111), gives us a description of the digestive process such as might be expected, interesting merely as a curiosity (112, 113), and enters into a disquisition about the cause of natural death from mere decrease of vitality (114, 115). The movement of augmentation is not continuous any more than undulations are continuous; it is a collective entity, consisting of many movements (115, 116). The difficulties which follow are of slight moment, and only serve to bring in a description of the various kinds of tissue in the human body. The rapidity of augmentation depends on the size acquired and the time taken to acquire it (116—118).

*Of Alteration.* As alteration is a change in quality, grounded upon the substantial components of each body — matter and form, — it is mainly Wyclif's theory with respect to the latter that is discussed here. Having expounded his idea of the universe — one material being, made up of punctal atoms, filling all possible space, and unchangeable except in so far as one of its parts can be separated from another by local movement — he states that the world can be thought, *firstly*, as mere

being; *secondly*, as substance, or the subject of various attributes; and *thirdly*, as matter, being extended, and possessing form (119). Thus matter, form, and the compound are the same being, the same essence, and not separate realities (120). This, in fact though not in words, is the denial of matter and form in the usual Scholastic sense of "two distinct realities, whereof the latter determines the former and the former is determinable by the latter which at the same time is sustained in existence by the former: both incomplete in themselves and apart, but together making up the complete material substance". In Wyclif's system, there is no need to admit such dualism. The simple inextended point *may be* either fire, air, water, or earth; this possibility is matter. It *is* actually one or other of the four; the igneity, aëriality, &c., which it possesses is its form. And the point itself, as being thus whilst able to be otherwise, is the compound. Denying the existence of extended atoms, the writer, whose system here does not differ much from that of other Atomists (*i. e.* so far as his way of explaining matter and form goes), escapes from many difficulties which beset the path of those who admit that the primordial atom is extended. But there are others.

*Objections.* — It is asserted that matter and form, since they are parts of the whole compound; cannot be identical with the whole. But Wyclif notes that they are not quantitative parts — as, for example, the head and the heart in man — but qualitative merely, like rationality and animality, for instance. The whole man is reasonable and is animal; the whole man is not at once head and heart (121). We have thus a sort of trinity in which matter, form and compound, identical in one sense, are different in another: but Wyclif takes great care to point out the difference between this trinity and that of the soul, or of God (121, 122). — If matter, as Wyclif asserts (121) is eternal, form is so too, being identical with it; and thus the world is eternal. But here he denies that the radical identity of matter, form, and compound with Being, renders these three identical with each other. Man is reasonable, man is animal; yet rationality and animality differ. All that is true, is good; yet truth is not the same thing as goodness. And Wyclif points to the Incarnation, as affording us another instance of a similar fallacy (123). — On the supposition that every essence is in reality everywhere the same, we have all sorts of contradictions. The answer to this is that contradictions may coexist in the same subject, either at different times, or

in different parts. No quality is essentially inherent to primordial matter; therefore, nothing can contradict it. A body composed of parts which come and go successively may receive different and contrary qualities, and yet remain the same; as, v. g., the Mediterranean may ebb and flow, and yet be the same sea (124—127). Thus, when we say, *This is hot*, we speak of the compound alone; it is *that which* is hot. Here comes a digression. How can heat, the proper quality of fire, be found in water, which is naturally cold? Particles of fire may be mingled with the water, though they are in a violent state; the water, if left to itself, will soon again become cold. However mingled the different elements may be, they still obey the laws which govern their nature (128—130). The chapter closes with a short survey of creation, beginning with the elements which, uniting, form vapours; these produce metals and earths; the earths, if mingled with fire and water, bring forth plants and also animals in an ascending scale of forms, the lower hardly distinguishable from inanimate beings, the highest, quasi-immaterial. The soul of man is completely so; and each higher form includes in its perfection that of the lower ones (130—132).

### *b)* Chapter X.

Summary of the Contents.

*Temporal Propositions do not affirm that the known is wherever the knower exists (133, 134). — Objections refuted (134—155). — Are all things together in time and place? Arguments* contra *(155—157). — Wyclif's solution (157—161). — Corollaries (161—165). — Three views on the essence of Time; 1rst that it is identical with God or the world (165—166); 2nd that nothing temporal is in the present (166—170); 3rd that Time might be indefinitely lengthened by God (170—173). — Wyclif's view:* Is *extends to all past and future time (173—177). — Objections refuted (177—191). — An eternal antecedent does not necessarily produce its consequent in time (191—192). — A cause produces its effect before that effect exists (192—199). — Time is the same everywhere. Arguments* contra *refuted (199—211). — Movement implies time; refutation of objections (211—224). — The non-entity of the world did not precede its entity (224—227).

*Is the known wherever its knower is?* — No; for then everything would be, as God is, everywhere (133, 134). It is objected that everything is truth, and that truth, like God, is everywhere. We may, however, admit this, restricting the sense of *being in space* to *filling that space quantitatively*. Thus, granting the force of the argument, we nevertheless deny it in the signification usually given to words. Christ's Body has size in the Sacrament, yet it does not properly fill space; it is present without either position or shape. The bread is not annihilated; what remains is a purely mathematical body, but not nothing; the sacramental sign is the reality of Christ's Body (134—137). It may be urged that the fact of movement is not extended in space, and that movement is consequently everywhere. But local movement is the movement *of a body*, and must be extended with that to which it belongs. Virtues, again, exist throughout the whole man, body and soul; but they are nowhere else but where their subject is. When a part moves, the whole may be said to move, it is true; only in a different way (139, 140). Movement thus takes its determination (individuacionem suam) either from its subject alone, *qua* subject, or from the subject with all its integral parts, or from this with the velocity also taken into account. The third point of view implies the first and the second; but not *vice versa*. Wherever there is a more individual movement, there is also a more universal one; and in this sense, movement as a universal, is everywhere, according to Aristotle (140, 141). God indeed is all truth everywhere; yet truth, as created, is not identical with God, and it were a fallacy to draw such an inference. The sense of words in these questions depends much on their position in the sentence. "It is *now* possible for a given future instant to exist", and, "It is possible for a given future instant to exist now", are two widely different propositions. God's knowledge of everything is absolutely boundless. No time exists for Him. *He is* means *He is yesterday*, or *He was to-morrow;* existing at once in all eternity — an instant to Him, — He comprises all duration in His being (141—143); and therefore His existence is an eternal *Now*. — Again, we have a similar sophism: "That may necessarily be which cannot be necessarily." This is false, but only when understood of absolute, not of hypothetical necessity. A future instant is necessarily "*about* to be", at a time when it cannot possibly *be* "about to be". All this is mere foolish subtlety; we go no farther than to say that, if at any moment it is true that a given being

will exist, the being is in the future (143—145). At different times that which is white is black, a man differs from himself, &c.; but this implies no absurdity. Becoming is a change, not of the subject, but of its 'suchness.' An instantaneous change does not imply an infinitely swift movement, for the idea of swiftness implies that of time, not of one instant only (145—147).

A great many fallacies are brought forward against this position, such as that, v. g., if future whiteness be always predicable of an individual, that individual will always be white; so that if at any time he were black, he would have and not have two essential contradictory qualities; or that a king cannot have been baptized, if, when baptized, he was not yet a king; and so on *ad infinitum*. They all belong to the class of *fallaciae accidentis*. "What you have bought, you have eaten; but you have bought raw meat; therefore you have eaten raw meat." The change from black to white is one, not of nature, but of quality. The individual differs from himself modally, not essentially. The 'being a king' is in a man a mere accidental quality; the king has been baptized, not as a king, but as a man. "He who is now a king, was baptized when not a king", is perfectly true. Much depends on the compound or the divided sense in which terms may be taken. "He *who is begotten* is *David the king*; *David the king* and *who is begotten* belong, as predicates, to the verb *is*, in the divided, not in the compound sense. Besides, the act of begetting is not instantaneous; it has many preparatory acts (147—154). — There are also several theological arguments on p. 150, concerning the possibility of God's assuming the personality of all creatures, which Wyclif briefly meets by denying (154, 155) in direct opposition to Aquinas (Sum. Th. p. $3^a$ qu. III. art. 5, 6).

*Are all things together, both in time and place?* — Wyclif first of all gives the arguments *contra*. If it were so, there would no longer be any distance between things. The future and the past would exist eternally; a man would both exist and not exist in the same (eternal) time. Again, whatever takes place in any part of space and time, must take place there only and only then; its existence cannot possibly be extended any farther (155). On the other hand, the world is everywhere; yet the *whole* world is not in any part of space; and in like manner, if anything exists at any time, its *then* existence is true in all time; and so also of space (156). — Wyclif thinks that this question arises mainly

from the varying senses of the word *together*. Two things may be said to be together, i. e. both occupying exactly the same space (an absolute impossibility) or contiguous, each being in different places, or both, though separate, being contained in the same larger space. As to time, absolute simultaneity is possible (157). This answers most of the objections. *Always* may be understood as meaning *eternity*, or *during all eternity*, or *in some part of all eternity*. The last sense is of course widely different from the others, and in this sense alone, *whatever is future or past is always* (158). We may see a thing, though we do not see the whole thing; just so, a man may exist in the X$^{th}$ century, though non-existent during a part of the X$^{th}$ century (158, 159). To maintain this, however, we must say that time consists of instantaneous elements. For, if instants are not parts of time, then instantaneous events (such as cognition, division, &c.) could not be said to exist at any time, having no duration. And if not at any time, their contradictories would be true in all time, notwithstanding that they also would be true. It cannot be said that, from non-cognition to cognition, there is a change which implies time; for from one contradictory to another, there is no real change. That which is not white now, if at any time it is to become white, cannot receive the predicate of mere non-whiteness: so non-existence in a part of time is not non-existence in that time. After death, a man is neither simply non-existent nor existent: he is non-existent *then* (160, 161).

*Corollaries.* — Time, the duration of the world, began with the world, and with it must last eternally; necessary to the creation of the world, it does not depend on anything but the general fact of movement. It consists of indivisible instants as its elements; these are absolutely without magnitude, and time itself is everywhere, indivisibly the same throughout the universe (162). As the world is everywhere, so is time, and so is God (163). What begins and ends in time (as corruptible entities); what makes up the very essence of time (as an instant); what has modes of being measured by time (as the heavens), may be called temporal, but in different senses (163, 164). Time is in itself a cause of dissolution, for it causes things to grow older; but occasionally it is a cause of production, since it renders their production possible. Its very essence is change, and no two of its parts can coexist (164, 165).

*Three views on the essence of Time.* — *a)* It is identical with God or the world's existence. This view is absurdly erroneous; it would

make all things eternal, and destroy all certitude as to the duration of things (165, 166).

*b)* Nothing is, but everything either was or will be. This cuts short disputes as to the existence of things during an infinitely brief interval. But then, what never is, never was or will be. To God's knowledge nothing is in the future, so He would know, for instance, movement to exist, and it would not be true. One hour must be the double of half an hour; if so, there must come an instant at which this is true in the present: i. e. when half is past, half future, and the whole hour partly one and partly the other. *Present* may indeed be taken in a wider sense than one single instant. Here Wyclif shows clearly that, in the same way as he assumes the existence of separate individual points as realities, so he also assumes the real existence of instants, joined together to form time, shorter or longer, but also really existing in another time which includes both past and future. Instead, therefore, of a century being a present which is fictitious, consisting only of indivisible instants before and after each of which there is the non-existing past and the not yet existent future, the whole century forms a real present, though real in another sense than that of the instant which is *now*. And Wyclif adds that, if this be not admitted, he does not see how the sacramental words, for instance, "Hoc *est* corpus meum", can be true. Only an infinitesimal part of the proposition would exist; the whole, never; and consequently it never would be true. To say, "Nothing that is past or future exists", is in reality to destroy time. God's immutable knowledge of things, and His free-will, are both contrary to such a supposition. Christ, in the Divine Essence of the Word, saw men long before their temporal existence; but He saw them as existing, and they did truly exist in the reality of long centuries of the future. And thus He is rightly called, Son of David, Son of Abraham, in this real extension of time, by which David and Abraham come to be coëxistent with Him. Has a posthumous child no father at all? None, unless we grant the real simultaneity of its existence now with the past in which its father lived (166—170).

*c)* Time, though a successive quantity, can be lengthened out indefinitely by Almighty Power, so that one instant would be equal to ages. This is possibly the doctrine of the *aevum* or *instans angelicum*, familiar to Mediaeval Schoolmen, which some of them may have supposed

extensible to corporeal beings. According to that doctrine, the duration of Angels, from one thought to another, may last for centuries without change — centuries that are for them but one indivisible instant. This is generally allowed, and I have not anywhere been able to find any trace of the actual extension of the doctrine to bodily substances. But it may be explained as follows: Supposing that, at the present moment, God suspended every movement in the whole universe for a hundred years — like the tale of the Sleeping Beauty on a gigantic scale — and then allowed it to continue as before, there would be no movement, and therefore no succession of time; and one instant would be a hundred years in length. This is in flat contradiction to Wyclif's doctrine of eternal time, consisting of instants, each of which requires another *immediately* following it; so he is at some pains to refute the possibility of such a hypothesis. The instant is an individual quantity, which can neither be lessened nor increased. If it could, it would contain many instants, and thus be no longer one only. A short time would equal a long one; the essence of time would no longer consist in duration alone, for nothing could differentiate the 100-century instant from an ordinary one. In conclusion, Wyclif dismisses this theory with contempt (170—173).

*Wyclif's view. Is* extends itself really to all time, past and future. Whatever is, is always, as has been shown. If not, we deny the very essence of time. Its parts do not coëxist, but vanish as fast as they appear; yet they *are*; now in the past, now in the future: and again, in a wider present they may be said to coexist. This is clearly signified by the sense of the verb *Is*, which by itself does not connote any given instant of time, and therefore signifies eternity (173—177).

*Objections refuted.* — To say that all instants, because they are together in eternal time, are together with absolute simultaneity, is but a sophism. Simultaneity requires that two things be together at the same instant or instants, and at no others. Now one instant cannot exist exactly when another does, but either before or after (177—179). — The often urged 'necessity of all things' may be admitted, if understood as merely conditional upon God's will; for whatever is determinately true, is necessarily true, and there is no such thing as indeterminate truth. Hypothetical necessity, as this is, does not deny contingency, nor the free-will of man, nor chance. The hypothetical fact that God foreknows anything, makes it necessarily exist at some time or other. Given that I exist, it

is not in God's power that I do not exist. But *when* must anything exist? At a moment known to God (179—183). The simultaneity of life and death would, as already stated, require them both to take place at the very same instant. Time exists, but its parts do not all exist *now*, only one at a time. *Now* is but one mode of an existence which *not now* does not destroy. An instant *then*, *now*, and to *come* exists differently, but cannot at any time be called simply non-existent. Antichrist must come: therefore he *has* come . . . in the future. That is a modal, but a real existence. It was never true that *I am not*. To exist and not to exist are contradictories; they may be true of the same being, but not in the same *Now*. God knows past, present and future things with the very same knowledge, yet this does not argue sameness in the object known. Light is not affected by the presence or the absence of the object illuminated. God may know present and future things as past, if they exist in time; things eternal are eternally present; such, for example, as the archetypes of what was, is, or is to be (183—188). Here Wyclif again returns to his adversaries' favourite argument, viz. that black is white, and all contraries identical. But one remark of his is worth noticing. A proposition may be true, and yet false at any finite part of time; as, for instance: 'All the instants of time exist'. This is true only for and in endless time (188—191).

*An eternal antecedent does not necessarily cause its consequent in time.* — If it did, all things would be eternal. God eternally knows and causes all that which exists temporally. The extrinsic act of God, terminated in the creature, is, *as thus terminated*, neither eternal nor necessary; the intrinsic act of His being is eternal and changeless (191, 192).

*A cause produces its effect before that effect exists.* That is, before its existence it is producing it, but not now; in the future. The ideal being of the effect depends upon its cause, and is produced by it before the moment when its real existence has to be actuated. On the other hand, cause, *qua* cause, and effect, are simultaneous. Many things are neither instantaneous nor temporal; v. g., certain eternal truths, and beings of which the existence is intermittent. Wyclif here wonders how the writers of his time can oppose his system, which is confirmed by the very expressions they employ; and he blesses God, who has enlightened him that he may escape the difficulties in which they are entangled (192—195). — The necessity of sin depends on our own free-will; the

fact of its happening, on the will of God. — The use of the present for the past and the future cannot be blamed as an abuse of terms, nor as the denial of expositorial syllogisms. No logician should use it thus when he is likely to be misunderstood through ignorance; but it is allowed to speak otherwise to philosophers than to the common people. Neither the expositorial syllogism, nor any other, is denied by Wyclif's theory, which on the contrary admits many forms of syllogism that others deny. — A curious difficulty is raised here by the adversaries (195). Wyclif is certain that he has had no son. Yet perhaps his son *is* wiser than he; for he possibly may have a son yet. If this son 'will be', then 'he is' according to the theory which extends the future to the present. Wyclif denies this conclusion, unless it is certain that he will have a son. At first sight it does not clearly appear how this can be denied in the form given. "Filius meus *ex mihi dubio* esset sapiencior me." A supposition that depends upon another supposition is quite thinkable. But we must here remember Wyclif's doctrine — that the distinction between extrinsic and intrinsic possibility has no real foundation; that a seemingly possible creature is in reality impossible, if God has chosen never to create it (*See* Logica vol. II., *Intr.* XXIV). We have the right to deny the possibility of Wyclif's ever having a son in the future, unless we are certain that he will have one. Perhaps the individual in question is possible; God knows; but we know nothing at all about him (195—199).

*Time is the same everywhere.* — Our author begins by enumerating the arguments contrary to his own opinion (199—202), and then refutes them one by one. Even if the world were not everywhere, it would not follow that time is not everywhere. But as a fact, the world being (partially) in each and all of its parts, that argument must fall to the ground (202). — It is denied that the world has any unity whatever, being a mere aggregate; and time, an accident belonging to the world, cannot have more unity than its subject. But Wyclif points out that the laws of nature give unity to this aggregate, just as political laws give unity to an aggregate or assembly of men. Besides, the world, notwithstanding changes, remains the same in its efficient cause — God — and also in its material cause — the atoms of which it consists. If we grant that the world is animated, its unity becomes much more evident; now, we have many proofs that it really is an animated

being (202, 204). — If a part of the world could become the whole, then indeed the duration of each part would have separate existence. But this supposition would be true only in case a part of the world were annihilated; a possibility which Wyclif absolutely denies (204, 205). — What is extended is not everywhere the same. True. But is time extended, merely because it is the duration of a body? No. A man's duration does not change, if he happen to lose some part of his body. Movement indeed, though inextended in itself, is extended in the body which moves. But take away any part of a body in motion, and the whole quantity of the movement is lessened; the same cannot be said of its duration. Thus we may define Time as the universal, indivisible and ubiquitous duration of all temporal things (205, 206).

Another objection, on which (to judge from the length at which it is dealt with) Wyclif's opponents seemed to rely a great deal, may be summed up as follows: Were time everywhere the same, day would be night, summer, winter; fair and foul weather would be identical: for they are parts of time. If Wyclif answers that the same time may be night in one place and day in another, he is met by the reply: How then can time be *the same* in every place? Where there is night, there is no day. If time, which is everywhere, be night, then night is everywhere; or if not, the universals Day and Night have a semi-spherical shape, and pursue each other round the earth! A body moving swiftly westward would enjoy a longer day, and night, being everywhere where day is not, would exist in the interior of every opaque body. All which is manifestly absurd (200, 201). — The answer is obviously that day and night are not time, but times. Time happens to be called day or night according to the circumstance of the presence or the absence of light (206, 207). Time, i. e. that which is here as day, may be (and is) elsewhere as night. To say that light pursues darkness is a mere metaphor which may be admitted or denied as we choose. That night is semi-spherical, because it occupies a semi-spherical space, is not more true than that God is round, because He fills the rotundity of the universe. We ought also to draw a distinction between natural and artificial night and day. Day exists eternally throughout the whole world, except in the interior of the earth, or in its shadow. Night is nearer and nearer to a fixed point on the earth's surface; it does

not follow that night moves, but that the movement of something else (i. e. of the sun) causes night to be nearer. Many quibbles arise from too lax a use of words. We have day after sunset; an eclipse may cause night at noon, it being caused by the moon's shadow, not the earth's; and the moon, if self-luminous, would be the cause of day. Every kind of obscurity may be called night. All these difficulties spring from different meanings given to the same words. Properly, day exists on earth only when the sun is above a given horizon. But this is merely incidental, and quite irrelevant to what time is in itself (207—211).

*Time implies movement: objections refuted.* — Time requires the idea of a Before and an Afterwards, which are to be found only in movement. If all movement were to cease, time would cease too. It is objected that the mere act of imagining time, without any movement, would suffice to cause time. Imagination would certainly create time by the very fact of its activity; but this is itself a movement, and the hypothesis of a bodily faculty working without motion is utterly absurd (211—215). At this juncture, Wyclif enters into a digression respecting the happiness of the Blessed in Heaven (215, 216) and the misery of the damned (217), which is relevant to the question in so far as, positing eternal time, Wyclif must posit eternal movement of some kind. He asserts that all movement cannot cease in the world; successive knowledge, and (I may add) the feelings of pleasure and of pain, require it (217). Whether the world will continue to move after the Day of Judgment is not so certain. The changelessness which follows upon the attainment of the end of any being, may be called rest, and such rest is not opposed to successive motion. But the rest of a being that can and does not move must be denied for many reasons, one of which is that, applied to the world, such rest would neither be successive nor instantaneous; neither in time nor in any part of time. Lines, &c., may begin and end instantaneously; but this cannot prove that a substance may do so too.

If it be true that the hand of a clock, turning round in exactly 24 hours, would measure time as well as the First Mobile, we have a very slow movement equal to one excedingly swift, as regards time; therefore movement and time are not interdependent. — This objection, Wyclif admits, contains a point which the imagination is unable to

represent. What is necessary is that the movement by which time is measured should be regular. Our author here gives some rather intricate explanations as to the possibility of a first instant of time, in answer to the objection that, at the first instant, there is either movement or rest; if rest, then no time exists; if movement, that implies a Before, and there is no first instant. The objection might easily be answered by saying that the first instant is not properly a part of time, but merely a *terminus a quo*, a starting-point: only such an answer would contradict the whole of Wyclif's theory. — A last difficulty, viz. that the world, immediately after its creation, might have remained at rest for some time, is met by a flat denial. Rest is a perfection, but not such as can belong to the world. That it will exist eternally is no contradiction to the assertion that it began to exist; but here there is a very considerable difficulty (non occurrit michi promptus modus explanandi me in ista materia . . . ideo transeo pro presenti, p. 224). Evidently Wyclif's system, positing the necessity of the world's everlasting existence, because each instant of time requires one that follows, is endangered by the question whether each instant does not require one to precede it: the old objection of Aristotle, who for that reason asserted the eternity of matter, an assertion contrary to faith.

*Whether the non-being of the world preceded its being.* — This last question arises out of the foregoing one, and seems (though that would contradict other parts of the system) to lead our author to a conclusion like that of Aristotle. For if it be answered negatively by the assertion (225) that the world's non-being never was, and that its being was always, this looks a great deal like the doctrine of the eternity of matter. But in the answers to the objections, we find that Wyclif distinguishes between *to be* and *to be existing*. As *I am* long ages before *I exist* (according to him) so the ideal (though real) being of the world was eternally before its material existence; being before, it was *without its existence,* but not *with its non-existence*. Of course it is very hard to get out of the difficulty, which is on a par with the rest of the system; but the answer satisfies Wyclif's doubts. Ideal being, *that which* is the existing world, really was in eternity before the world existed. It was identical with God's knowledge; so long as God did not know the world to exist *now*, i. e. in the first moment of time.

## IV. Conclusion: The gist of the Nominalistic controversy.

With these arguments the third volume of Logica closes somewhat abruptly. Like the rest of the work, it abounds with arguments of striking force, as directed against Nominalistic exaggerations; but, on the other hand, Wyclif's theory of Space and Time lies open to a great number of objections which even his ingenuity is not always able to refute as satisfactorily as might be desired. In many parts, for modern readers at least, it has only the interest of an intricate puzzle.

The problem of the Universals, however, though seemingly as dead as any other philosophical question of the past, deserves a few concluding words. I shall endeavour to show that, under other terms, and until some fuller explanation is found than has yet been given, it is and will remain for ever the great stumbling-block in the path of all metaphysical inquirers.

When we have the idea of *a* man, *an* animal, *a* substance, we conceive something that is universally the same in all men, animals, and substances. Is there anything in the objects of our thoughts that corresponds to it — anything really universal, *universale in re* — or is there nothing? If we answer in the negative, we hold the Nominalistic position; if in the affirmative, we are Realists in the old sense of the word.

But to answer affirmatively, we must, either implicitly or explicitly, lay down the following formula: *What is in our mind exists in itself in the same way as it is in our mind.* Lay this down, and you have Berkeley's denial of matter, German transcendentalism, and modern Idealism in general. *Esse est percipi;* to be is to be perceived. Matter exists as we know it, and as much as we know it; outside of the knower, it has no being at all. The Non-Ego is posited by the Ego, and is identical with it. We can have cognizance of the external world only as a modification of ourselves; and if it exist *as we know it*, it is nothing but this modification.

On the other hand, Locke's conceptualism, the materialism of certain XVIII$^{th}$ century philosophers, and the empiricism and positivism of our own times, proceed from the negation of this axiom. Locke, in order to affirm the limits of the human understanding, was obliged to deny to certain ideas any value but such as is merely subjective; which amounts

to saying that, however infallible the deductive process, however evident the first principles from which we start, we are still liable to be mistaken, because *things may be otherwise than as we know them to be.* To assert that all is matter, and that even the acts of our mind are material, notwithstanding our conscious certitude that there is an abyss between the two, is to set down that whatever we know, no matter how indubitably, may be false if it goes beyond material facts, and laws relative to matter. Again, the statement (which would ruin Metaphysic, if Metaphysic could be ruined by man) that at the bottom of all our inquiries into first principles, we find self-contradictions and absurdities in every possible assertion on either side; and that consequently though we can know neither space nor time, we must confine our investigations to that which is conditioned by time and space: — this well-known doctrine is based upon the denial that things are as we know them.

The quarrel between Realists and Nominalists is thus an important phase, but only a phase, of the everlasting struggle between two opposite currents of thought. I call it everlasting, for though the forms may vary, it is likely to spring up for ever, or at least so long as human curiosity as regards such high and abstruse matters continues to exist.

Not that there is no answer to the problem, no middle way between the absolute affirmative of one class of philosophical thinkers, and the uncompromising negative of the other class. But in this very answer we find the reason why it is not universally accepted as settling the point in dispute.

Do all things exist as they are known by us? *As* is a very short word, and (it would seem on a superficial view) not equivocal in the least. But let us consider it more closely. Things seen in a looking-glass both are and are not *as* they are in reality. There is a certain resemblance, more or less perfect; but the difference between them is that between the image and the original. In the same way, so far as any comparison is possible, the human intellect is the mirror of Nature. Our thoughts are the images of things; but we can no more conclude that things are of the nature of our thoughts than we can infer that a nosegay *out* of a looking-glass is of quicksilver amalgam, because *in* the looking-glass it is imprinted upon quicksilver. Thus, things exist as they are known by us: that is, we have the right, they being the causes of our thoughts, to make certain inferences

from the effects to their causes; inferences necessarily vague and indeterminate to a great extent, but none the less true, on account of the necessary resemblance between the image and that which it images. Even a shadow, however distorted and indeterminate, bears some resemblance to the person who casts the shadow. But on the other hand, things do not exist as they are know by us, if *as* means a complete identity of nature between the known and the knowledge thereof. For *that which* is the known, is such only from one point of view, or at best only from a few points: it — i. e. the same *that which* (as Wyclif would say) — is the Unknown from millions of other points of view. All the sophisms in the world cannot get the better of this distinction, by which all similitude of *nature* between knowledge and the known is excluded, whilst similitude of *representation* is carefully maintained.

But it is precisely this answer, though given by many great minds, both amongst the ancients and the moderns, that fails to satisfy by its very moderation. We long to get behind the 'Thing-in-itself', and if we find we cannot, we cry out that there is nothing at all outside the mirror; or, after many a squabble, weary of disputes, we deny that we can know anything of that which the images represent, and that all science ought to be concerned with the images alone and their relations with each other. And thus the disappointment caused by the perfectly natural and simple answer given above leads to two contrary excesses of thought. Some, yearning towards the Absolute, conceive endless systems by which to go beyond the limitations of the mirror: systems beforehand doomed to failure as hopeless as the search after perpetual movement. Others think that the contrary extreme is the only tenable position, and reject even such limited inferences as may justly be drawn, nay, that our very nature compels us to draw. Those aspire to be as Gods; these are content to thr ow away part of the inalienable birthright of men. Wyclif, I think, belongs to the former category. His system was, partly at least, a mistake; but it was the mistake of a bold, powerful, and comprehensive mind. He and all those of his class were philosophers, gifted with a mighty grasp of thought, and immense mental acumen; whilst the others, however ingenious their subsequent endeavours to reconcile their principles with facts, must, by the laying down of those very principles, strike at the root of all philosophy, and even of human reason itself.

# TRACTATUS TERCIUS

## Continuatur.

## CAPITULUM NONUM.

B 99[b] Sequitur de localibus pertractandum. Supponendo primo omnem ypotheticam adverbio loci copulatam cum proporcionali actu esse localem; ut est talis: *Sor currit ubi Plato currit.* Est autem iste species ypothetice (sicut causalis, comparativa, et temporalis), affinis cathegoricis, cum signa coniungendi talia convertuntur cum cathegoricis. Idem enim est dicere: *Sor currit ubi Plato currit;* et: *Sor currit in loco in quo Plato currit.* Et hinc, 2[m] auctores, adverbia loci et temporis sumuntur quandoque nominaliter pro denominacionibus cathegoricis a loco et tempore: ut patet de istis: *ubi, quando, nunc*, et similibus. Sunt ergo tales proposiciones quante et quales, ut cathegorice: et per consequens sunt iudicande vere vel false, contradictorie, equipollentes, vel aliter passionate, sicut cathegorice. Unde hec: *Sor non est ubi Plato est*, habet 3[s] causas veritatis. Vel quia alter illorum non est, seu uterque, vel quia idem locus non continet utrumque. Illud tamen non est compossibile cum *esse* istorum; quia, sicut necessario omnia que sunt, simul sunt tempore, sic necessario omnia que sunt simul sunt loco communi. Unde, quamvis nomen loci sit equivocum, satis tamen est pro nunc cognoscere locum qui est situs.

Pro quo noscendo, notandum mundum componi ex certis athomis, et nec posse maiorari nec minorari nec moveri recte localitèr vel aliter figurari, ita quod tantam multitudinem athomorum consequitur tanta quantitas continua et talis figura, propter causas immutabiles

Local propositions comprise all propositions that are joined to another by an adverb of place.

This species resembles categoricals, for *where* can be resolved into *in the place in which;* thus rendering its proposition categorical.

They are quantifiable and qualifiable, and have the other properties of categoricals.

*A is not where B is*, may be true either because one or the other does not exist or because their whereabouts is different; but this last is not possible if both exist.

Place is equivocal; here we shall deal with it, taken to mean position.

The world is made up of atoms, can be neither increased nor diminished, nor moved in

1. Cap. *deest; blank space for initial* S. 29. ~[9] una[les] *in marg.* B.

a straight line, nor changed in shape; all this is immutably dependent on the number of atoms.

naturales. Aliter enim non esset mundus capacissimus et convenientissimus in figura. Et ex illis sequitur situacio mundi et eius duracio. Unde Aristoteles, nominans quantitates continuas, nominat species per ordinem se habentes, ut lineam, superficiem et corpus; et preter hoc locum et tempus, quorum omnium principium est punctus; et unitas est principium puncti. Et tam necessario consequitur locus materiam quod ubicunque fuerit ista maxima materia mundi, ibi est iste locus. Sic quod, si moveretur recte (per impossibile) in vacuo infinito, foret continue idem situs, cum ad individuacionem illius situs sufficit extensio illius materie. Manet autem necessario ista materia, etsi infinite eius partes corrumpantur; quia oportet illas continuari aliunde cum residuo huius materie.

Site follows matter; where there exists the mass of the world, there is the same place.

The point is the principle of which partial spaces are made up; but that by which we know these partial spaces is the whole extent of the world. If the world has subtle motionless parts, to which is united the Power that rules the world, it becomes easy to distinguish place. Into such parts there can enter different bodies, one after another. Plato calls place *matter*, *emptiness*, &c. There is no difficulty as to compenetration, since theology teaches that it is not impossible.

Et sic, quamvis species situs punctalis sit principium integrandi omnem situm divisibilem, tanquam minimum metrum illius generis, tamen totalis situs mundi est nobis mensura cognoscendi alios situs particulares, et prior in perfeccione et intencione nature, cum gracia illius situs quem principaliter intendit, ordinat natura situm indivisibilem tociens multiplicari $2^m$ eius individua. Si ergo mundus habet ad omnem eius punctum partes inmobiles, subtiles, comitanter ad speciem in animali, cum quibus copulatur virtus mundi regitiva, que facit informaciones vivencium et alia opera latencia; tunc facile est distingwere situs parciales, cum quilibet situs parcialis foret *talem partem situari*. Et | in B 100ᵃ talem partem ac eius situm possunt quotlibet corpora vicissim ingredi, sicut theologi ymaginantur omnem ultimum inmobile se habere. Et illius opinionis videtur fuisse Plato, vocans locum materiam, ylen, vacuum, vel fraudem fictam crassis tenebris involutam. Et quo ad penetracionem corporum, non plus procederent contra eum quam contra theologos nostros ponentes quod corpora possent transire in celum sine eius alteracione vel corporis sic coextensi corrupcione. Unde Lincolniensis ponit omnia astra esse corpora mixta ex puritatibus

6. locus B. 24. com͡t' completur B. 25. copulatur *in marg.* B. 33. cl͡ſ, B. 36. lata'co͡e B. 38. pur'tatib9 B.

24. *Immobiles, subtiles.* I suspect that Wyclif here means the space by which the world is measured. See a few lines below: *in talem partem . . . possunt . . . corpora . . . ingredi.* 32. *ylen.* It ought to be *hylen* = ὕλην.

elementorum. Et dicit esse probabiliter opiniabile quodlibet astrum per se moveri, toto orbe residuo quiescente.

Relictis ergo istis ambiguis, loquendum est de situ qualiter oportet omnes rectiloquos loqui, quomodocunque fuerint probabiliter opiniati. Nam, ponendo quod quelibet pars superlunaris preter polum continue moveatur (et sic de qualibet parte sublunari preter terram vel sibi adherencia, ita quod non sit talis pars mundi supernalis quieta): tunc potest dici quod sicut ad indivisionem situs mundi sufficit ista materia, sic ad indivisionem situs cuiuslibet partis sue sufficit quod iste mundus habeat aliquam partem sic positam in comparacione ad polos et centrum; que tria quasi omnes philosophantes dicunt oportere semper quiescere.

Every superlunary part of the world, except the poles, is in continual motion. Its matter suffices for the unity of its site; for that of its partial sites, we have their fixed relations with the poles and the motionless centre.

Ex quo ulterius concedendum est quod manet continue idem situs in numero, propter idemptitatem mundi et conformitatem distancie ad duplex quiescens, situato quantumlibet in substancia variato. Si enim datum corpus vel quodcunque aliud se habuerit continue per totum eque distanter ad polos mundi et quamlibet partem terre quiescentem: tunc est continuo in eodem situ; ita quod indivisio situs accipitur a gravitate corporis ex hiis tribus principiis, non autem a centro mundi indivisibili per se quiescente. Unde, si centrum mundi et duo poli quiescerent, toto residuo moto, tunc quilibet motum $2^{m}$ circulum concentricum et eque distantem a polo mundi foret continue eque distans ad hiis tribus, et in casu a quolibet alio distante. Sed iam necessario multa terrena quiescunt, sicut et multe partes celi, respectu quorum sic motum varie se haberet quo ad distanciam parcium. Sicut ergo continue manet iste mundus propter unitatem istius materie, quamvis illius mundi continue corrumpatur pars, sic propter unitatem mundi habentis quamcunque partem sic positam, maneret iste situs parcialis, quamvis continue sit nova et nova ubicacio.

Place is, therefore, always numerically the same; if any body is always equally far from the poles and from the centre, it is always in the same place. Admitting the stability of the centre and the poles, any body moved in a concentric circle round them would be equally distant from them; but the distance from the motionless parts of the earth and the sky would vary.

*Difficulties.*

1. If the space filled by the world is the common place of all things, many places can be together, and there would be no moving from one place to another.

Grave tamen esset videre quid subiectaret illum situm, et quod foret ultimum singulare situs. Cum situs datus sit commune, et cum omnis situs sit *aliquid situari*, videtur quod quotlibet situs possunt esse simul, et unus moveri ad intrinsecum. Et sic locus per accidens

9. ſpūalis B. 9—10. indini° ȝ B. 9—10. indini°ȝ B. 22. agūe generabile (?) B. 25. 2° *pro* duo B. 28. 3ª *pro* tribus B.

2. One place would be placed in another: which is absurd.

locaretur, et sic in infinitum procederetur in locacionibus, sicud et in aliis quantitatibus, sed non per se essent quante. Ista ergo situacio est *hoc situari*, et non *habere mundi* vel *relacio*, cum sit quantitas principians ubicacionem alterius generis, sicut tempus principiat ipsum *quando*. | Et per consequens nil distans a relico B 100[b] potest esse adequate ubi ipsum relicum est, nec aliquid potest esse alibi quam adequate est, nec aquirere locum vel moveri de loco ad locum sibi adequatum. Et sic non specificaretur motus localis per terminum *ad quem*, vel eius materiam, cum nichil potest moveri de loco ad locum.

3. No two things distant from each other could be in the same place, nor could they move from one place to another.

This comes from saying that situation is lost with the slightest variation of the subject, or that place is a hollow in the surrounding body, or denying that there is any other place but that body; and such opinions contradict the very expressions used in speaking of place.

Men and animals know that a moving body changes its place.

As the movement of the world, so its situation presupposes certain fixed points.

Thus these three (the two poles and the centre) cause the situation of the world.

Ista et multa similia dependent super isto, quod omnis situacio vel locus pertinenter signandus corrumpitur ad quamcunque modicam variacionem subiecti; et idem sequitur, ponendo locum concavitatem corporis locantis, et longe magis absurda ponendo nullum locum preter corpus locans, quia pari evidencia negaretur quodlibet accidens. Et deficerent verba ad exprimendum magnitudinem, adquisicionem vel immobilitatem loci, cum aliis philosophice de loco locutis. Nam tam homo quam bestia habet innatam sibi potenciam ad cognoscendum mobile mutare locum suum, sicut patet de naturali noticia situs, posicionis, distancie, et oppositionis. Ideo sicut in natura omne motum vel mobile innititur alicui fixo, sic non est possibile nos locum cognoscere, nisi in comparacione ad aliquod fixum. Sicut ergo mundus ad eius motum situalem presupponit polos et centrum quieta, sic presupponit ad eius situacionem eadem, saltem 2[m] speciem, quieta. Et sic vere dicit commentator quod centrum mundi est causaliter eius locus; et per idem uterque polus, non quod situs indivisibilis sit formaliter situs mundi, sed quod hii situs principiant, tam quo ad *esse* quam quo ad noticiam, situm mundi et cuiuslibet sue partis. Cum ergo mens prius cogitat singulare fixum quam situm, non mirum si a tali individuat locum, et si locatum quantumlibet varietur.

Answers. 1. Situation belongs primarily to every part of the world out of which nothing can go;

Ad primum argumentum, dicitur quod situs parcialis est primo subiective in communi ad quamcunque partem mundi sic positam, et ab illo communi non potest

4. m̂di B. 8. aq̃re B. 9. locum *deest* B. 13. dependentes B. 23. mol[e] mũr' B.

migrare. Universalia enim sunt alicubi, et generabilia, et corruptibilia per accidens, ut patet ex dictis superius. Sed per accidens subiectatur in quacunque singulari parte mundi sic posita, licet non dependet a tali.

but it belongs accidentally to every particular part.

Pro 2° notandum quod aliqua forma individuatur a subiecto proximo: ut ista sessio, ab isto homine sedente; aliqua a subiecto remoto: ut ista caliditas aeris, a materia prima. Ideo manet eadem caliditas in numero, aere converso in igne, licet non eadem individuatur quo ad subiectum proximum. Et 3° individuatur forma a suo principio extrinseco, licet sit communis subiecto: ut, iste situs, qui est ultimum singularis loci, licet sibi possunt accidere quotlibet ubicaciones. Nam ubicacio individuatur a subiecto et a loco, qui non est communis predicacione, sed causacione, ad quotlibet tales situs. Ad 3^m dicitur quod deus non potest facere duos situs coex- B 101^a tendi, nec duo puncta, | vel sua subiecta esse simul in eodem situ indivisibili. Verumptamen contingit duo corpora esse simul in unum ad omnem punctum alterius cum hoc quod quilibet punctus alterius illorum habeat situm sibi proprium. Ex hoc patet quod non oportet, si ubicunque extenditur A extenditur B, et econtra, quod ipsa coextenduntur, sic quod quilibet punctus unius sit in omni situ formaliter in quo est punctus alterius.

2. Some forms are individuated by their immediate subject, others by a subject that is remote, others by something extrinsic, yet also belonging to the subject; as in this last case.

3. God Himself cannot make two different places to coincide; but two bodies may coexist in a third, and yet have all their points separate.

Est ergo situs per se quantus et inmobilis: per se quantus, quia quantus sine alio formaliter ipsum quantificante, copulatus ad eundem terminum communem ad quem pars corporis; ut docet Aristoteles. Est tamen alterius racionis quam profunditas. Ideo non obest illam coextendi cum profunditate sine composicione alicuius 3^ii; nec possit moveri, nisi eadem distancia in numero possit maiorari et minorari. Differo autem a solucione argumenti quo probatur quod, mundi moto recte versus oriens, moveretur quilibet situs eius, quousque probatus fuerit casus assumptus. Sicut ergo res universalis est immobilis, sic et locus.

Site is thus a quantity by itself and motionless: by itself, since nothing else gives it quantity; and motionless; for the argument proving that *if* the world were moved in a straight line, its site would be moved, assumes what is impossible.

Unde descriptive locus est *quantitas continua, immobilis, permanens, qua corpus formaliter est locatum;* licet auctor sex principiorum extendat locum ad omnem locacionem substancie sive punctalis sive corporee; Aristoteles autem, 4° Physicorum, vocat locum *ultimum*

*Definition* of place. Gilbert de la Porrée's definition takes a wider view; but Aristotle implicitly says the same.

12. singularis (!) B. 30. 9poe B. 31. v' nec *in marg.* B. 39. a^or B.

*corporis continentis immobile primum;* quod intelligitur de agregato ex superficie concava locantis et respectu ad predicta principia loci. Illud enim immobile, et non ultimum convexum corporis locantis, sed ultimum concavum quod est primum et inmediatum continens.

Partial site is founded on universal site. Site differs from situation not only in form, but in sense: site causes situation.

Ex istis patet quod quelibet pars situs mundi est situs fundatus in communi ad quamcunque partem mundi sic positam. Et per consequens tam quelibet particularis situacio quam universalis situacio mundi partis, est alterius racionis quam situs qui est locus. Et notandum quod propter istam differenciam habendam credo quod hec nomina situs et situacio inventa. Omnis enim situacio partis mundi causatur a situ; quia quotlibet tale *ubi* causatur a loco; quod idem est. In mundo tamen et primo subiecto situs idem est situs, posicio, et situacio.

However, in the universe, the poles and the centre, site and situation are identical. Six differences of position: *up* and *down*, for length: *right* and *left* for breadth: *before* and *behind*, for depth. These are absolutely unchangeable in the world and in perfect animals.

Et sic sunt sex differencie loci vel posicionis mundi: scilicet, *sursum* et *deorsum*, que sunt termini longitudinis; *dextrum* et *sinistrum*, que sunt termini latitudinis; *ante* et *retro*, que sunt termini profunditatis. In mundo autem et quolibet animali perfecto sunt iste sex differencie quorsumcunque ubicantur absolute fixe. Et in aliis dicuntur comparative. Unde, ymaginato homine cuius capud sit in polo antarctico et pedes in polo arctico, manus dextra in oriente et sinistra in occidente; tunc posicio illius hominis corresponderet posicioni mundi.

There are also other positions relative to different parts of the world: As anything is more distant from the centre, it is higher, and lower as it is farther from the circumference of the universe. Nothing can be above the circumference, nor below the centre.

Sed preter istas posiciones est dare alias posiciones parcium mundi respectu sui centri: ut res est eo superior in mundo quo $2^{m}$ se vel aliquid sui est distancior a centro, et eo inferior quo $2^{m}$ se vel aliquid sui | est B 101[b] distancior a circumferencia mundi Ex quo patet quod non est possibile centrum esse supra aliquid vel inferius quam est, nec circumferenciam mundi esse inferiorem vel infra aliquid, aut superius quam est. Unde false fingunt quidam ponentes deum posse rarefacere mundum in infinitum vel condensare versus centrum, aut movere ipsum motu recto, nisi forte equivocando intellexerint quod ipse habet potenciam ad hoc, *si posset fieri;* sicut ego possum videre bestiam mortuam, ipsa

12. ftt[2] B. 22. v'ca[v] B. 34. circumferencia B *ib.* inferior B.

21. *Animali perfecto.* Because it is able to *perceive* what is before and what behind, &c.

obiecta michi. Res autem multiplicatas non repugnat esse supra se vel sub se; et sic de ceteris differenciis, cum tunc sit res multiplicata localiter, quando complete est per diversa loca, sicut deus est indivisibiliter ad omnem punctum mundi, et anima ad omnem punctum sui subiecti. Proprie autem multiplicatur commune in suis singularibus, cum sit eorum singulum; ut punctus communis multiplicatur per totum mundum; et sic, quantum possibile est aliquid extensive multiplicari. Sed de puncto, loco, vel quantitate permanente singulari, non est possibilis talis realis multiplicacio, quamvis substancia singularis corporea bene possit multiplicari: sic quod alicubi sit materialiter et alibi intencionaliter vel sacramentaliter.

As for beings multiplied in space, they can be both above and below themselves; as God, the soul, and universals, v. g. the universal idea of a point. But their individuals cannot be thus really multiplied; though an individual substance can be multiplied sacramentally.

Ex istis patet quod mundus non simpliciter sed $2^{m}$ suas partes est suprema res et infima possibilis. Sed videtur michi quod superficies extima mundi sit alcior ipso et extra ipsum $2^{m}$ situm indivisibilem, nisi pars mundi superficialis subiectet illam, et per idem centrum mundi esset inferius quam aliquod permanens continue magnum. Et sic de cuiuslibet corporis termino. Non enim foret substancia superior vel inferior propter eius accidens terminans, si ipsum non subiectetur in aliqua eius parte pocius quam propter bonitatem, vel alia eius accidencia, quantumlibet distancia, aut propter talem terminum per se existentem in eodem situ quo infimo non continuatum cum terminato.

Thus the universe is in one place the highest and in another the lowest possible thing. I think that the circumference is by one indivisible point higher and beyond the world itself; so also of all surfaces.

Sed pro aliis $4^{or}$ differenciis notandum quod omne animal absolute habens istas differencias habet $3^{s}$ lineas dimensionales orthogonaliter se secantes in medio; et sex medietates concomitantes divise per tales tres lineas obiciuntur sex differenciis posicionum, sic quod quilibet extra medium talis animalis inter tales lineas, quantumlibet protractas, est comparative dextrum vel sinistrum, et cetera, huiusmodi animali. Et sic conclusio patet quod stat idem non multiplicatum esse sextupliciter positum quo ad differencias animalis; ut idem est dextrum michi, ante me, et supra me etc.; sicut patet de toto residuo mundi extra me. Nam circulare est maxime

Every animal that has these positions has three dimensions that intersect at right angles in the centre of its body, and six corresponding halves, upper, lower, &c. Thus the same thing can have six different positions at the same time relatively to that animal;

24. bo$^{m}$ B. 27. quomſmo B. 34. ptcias B. 37. ds al B.

27. *Infimo.* The word might read *in summo,* without the sense of this sentence being cleaver or the reverse. When I copied the MS. I found the word was most like *insivero.*

proporcionatum esse multipliciter positum respectu animalis, sicut et deus est maxime denominatus taliter respectu diversorum quo aliquid potest esse. Nam si aliquod causatum habuerit dextrum, sinistrum etc.; tunc deus est sibi dexter, sinister etc.

as for instance, the universe and God.

Ex quibus colligi potest quod tripliciter dicitur ad dextrum; primo modo summe dextrum; sicut est quilibet punctus linee dextralis, et omne quod $2^{m}$ se totum | est ad talem punctum. Voco autem lineam dextralem B 102 que protenditur versus dextrum usque ad finem mundi orthogonaliter correctam super lineam longitudinalem. $2^{o}$ modo dicitur ad dextrum simpliciter quod sic est dextrum quod nulla eius pars est non dextra, sicut est medietas mundi et quelibet $2^{m}$ se totum in illa respectu mei. Et $3^{o}$ modo dicitur dextrum $2^{m}$ partem; ut omne corpus circumdans me, et sic de aliis differenciis etc.

To the *right* may signify either absolutely so, as a line produced to my right hand until the circumference of the world; or simply so; as a thing of which no part is to my left; v. g. one half of the universe; or partly so; as a body that surrounds me. The right half of the universe is *partially* above, below, before and behind me: while it is *simply* to my right.

Ex quibus patet quod stat simpliciter dextrum esse quintupliciter positum respectu animalis; quadrupliciter $2^{m}$ partes, et $5^{o}$ modo simpliciter. Nam medietas mundi est simpliciter dextra michi, et est supra me, sub me, ante me, et retro me; licet partialiter. Sed solum $2^{r}$ dicitur aliquid alteri summe positum; ut idem est michi summe dextrum et summe sinistrum; ut patet de puncto terminante lineam dextralem.

There are only two absolute positions of a thing.

Scio tamen quod multe sunt altercaciones sophistice: ut unus dicit nichil esse supra me, nisi $2^{m}$ se totum fuerit supra me; et sic mundus nec est supra me nec subter aliquid; quia sequitur penes eos: A est supra B; ergo, A est superius quam B; quia aliter capud hominis esset supra ipsum; et sic esset corpus supra se, sub se, et ita de aliis differenciis. Pro istis alteracionibus suppono quod omne supra aliud est esse $2^{m}$ se vel aliquid sui in situ, qui est situ adequato inferioris superior; et sic homo non est supra se, nec aliqua pars quantitativa rei est supra vel sub suo toto; et sic de ceteris differenciis, ut patet ex diffinicione *quid nominis* supra dicta. Sed non video quomodo posset dari quam alta vel quam profunda foret res, nisi racione sue partis altissime aut profundissime. Unde res $2^{m}$ aliquid sui alcior quam

Sophists say that a thing cannot be called *above me* unless it be above in all its parts. According to them, *to be above* means *to be higher than.* But if any part of A is above the *whole* of B, then A is above B according to that part. Thus a man is not above himself, though his head is above his body.

1. alis = animalis? B. 11. errcam B. 16. $2^{cus}$ *pro* differenciis B. 18. alis B. 22. alr' B.

36. *Quid nominis.* A verbol definition, that merely explains what is meant by a given word.

reliqua $2^{m}$ aliquid sui dicitur esse supra reliquam, et ipsa superior. Et correspondenter de aliis differenciarum denominacionibus. Sed non oportet, si aliqua pars date significat aliqua parte alterius dande superior, eciam quod exinde sit prima res superior. Sed oportet capere denominaciones huiusmodi $2^{m}$ supremum vel ultimum talis denominacionis. Ex quo patet non sequitur, si A sit supra B, quod B sit sub A, ut patet de homine et corde suo; et proporcionaliter de aliis consequenciis.

But if A is above B it does not follow that B is below A.

Sed relinquendo ista sophistis et redeundo ad conclusiones priores, patet quod omne absolute habens istas denominaciones habet sex medietates communicantes, quarum quelibet continet $4^{or}$ medietates communicantes $4^{or}$ parcium aliis denominacionibus subiectorum; ut illud quod est primo sursum in animali continet medietatem partis dextre, et sic de parte sinistra, de parte anteriori et parte posteriori; et sic de aliis medietatibus. Nam ad omnem punctum sic positum continentur quinque denominaciones; et ad medium punctum exclusive concurrunt sex posiciones predicte. Sed medius punctus sic positi non refertur aliqua istarum 6 denominacionum respectu illius positi, sicut nec centrum respectu mundi. Nam medietas inferior mundi
B 102[b] est ab equinocciali | usque ad polum articum, et alia medietas incommunicans cum illa est pars superior eius; et medietas mundi a Colubro usque ad polum orientalem est pars dextra mundi, et alia medietas incommunicans est pars sinistra. Medietas vero ab oriente usque ad cenit habentibus speram rectam est pars anterior; et relica est pars posterior.

The upper half of any animal contains (partially) the right, the left the fore and the hind halves; for at every point of its extension we find these five positions, while the centre, being their starting point, has none of them. The lower half of the universe extends from the equinoctial circle to the arctic pole and the other is the upper half; and so on for the other divisions.

Ex istis patet quod *sub* et *supra* in mundo sunt equivoca. Nam aliquando dicunt altitudinem et bassitudinem, ut supra dictum est, et aliquando dicunt absolute posicionem mundi. Et sic polus articus dicitur summe subditus in mundo; bassissimum tamen et infimum possibile ad sensum expositum est centrum mundi. Unde, solum in mundo vel concentrico cum mundo, est idem

*Above* and *below* may indicate mere height and depth, or absolute position in the world. *Inmost* and *bottommost* are identical only,

5. ze' *pro* eciam B. 13. me$^{tes}$ B. 14. me$^{tes}$ B. 17. me$^{t}$ B. 19. media$^{b9}$ B. 20. et ad B. 27. coluro B. 33. al$\ddot{\eta}$ B. 38. fo$^{m}$ B.

25. *Equinocciali.* This may be a mistake for the Equator. 27. *Colubro.* The constellation of the Serpent. 30. *Cenit.* The zenith.

for spheres whose centre is that of the world.

esse infimum et intimum. Nam generaliter centrum rei est eius intimum, quia maxime intra illam. Sed non in eccentrico est centrum maxime infra, quia tunc nichil esset eo inferius. Non ergo est infimum.

All these positions admit of inequality amongst themselves, and also a maximum of each kind. Every place is equal to the greatest quantity that can be placed in it. Place gives dimension to the thing placed, and receives its dimensions from it; it receives dimension formally from the quantity that exists; and it gives dimension as an efficient cause, though not as an active one; it merely is that by which its subject has dimension.

Ex istis patet quod iste differencie posicionis sustinent magis et minus, et quod est dare summum vel maximum possibile in tali denominacione: ut summe dextrum, summe sinistrum, etc. Patet eciam quod omnis locus est equalis suo maximo locato et adequato; et per consequens mensurat ultimum gradum magnitudinis locati. Sed hic est dubium quomodo locus quantificat locatum et est in illo, cum idem locatum quantificat locum. Sed dicitur quod multum equivoce dicitur aliquid quantificare aliud, et esse in illo: Aliquid enim quantificat aliud efficienter, sicut deus quantificat omne quantum, et corpus continens quantificat suum contentum, sicut et locus. Sed quantitas, que est dimensio, formaliter quantificat subiectum suum et efficienter requantificatur ab eodem. Unde situs non est formaliter subiective in aliqua parte mundi, nec formaliter illam quantificans, nec ab illa quantificatus. Sed locus ponitur per accidens efficienter quantificare suum subiectum locatum, sicut est generati principium, quamvis non sit de genere activorum. Aliud enim est facere et aliud agere. Oportet ergo omnem locum corporeum coequare sibi suum locum; et de tanto habet locus racionem forme quod ponit locatum in suis limitibus quo ad quantitatem et figuram.

Position, dimension and shape are almost identical terms as concerns the world, but they differ as regards themselves, and are in each other

in three different ways: as the effect in its cause, as the cause in its effect,

De loco vero mundi, videtur quod sit valde propinquus sue dimensioni et figure. Differunt tamen ab invicem, cum quelibet pars quantitativa loci mundi differt a parti quantitativa dimensionis vel figure sue. Nec est inconveniens, sed necessarium, quod aliqua reciproce se quantificant in diversis generibus causandi; et taliter sunt reciproce in seipsis. Unde licet in 5° phisicorum dicatur aliquid esse octupliciter in alio, tamen tripliciter $2^{m}$ genus unum potest dici in alio. Primo modo, sicut causatum in sua causa; et taliter omnis forma est in suo subiecto tanquam in causa suscipiente denominacionem. 2° modo omnis causa est in suo causato, et omne subiectum forme est in illa forma:

1 infinitum B. 3. inecc͡t'co B. 23. qnati B.

ut homo est in substancialitate active vel passive, et ignis in igneitate, homo in humanitate; et sic de aliis similibus. Et 3° modo dicitur in alio sicut in suo extrinseco continente, ut liquor in vase. Et hec dicta pro presenti de loco sufficiant. |

or as the contents in that which contains them.

B 103ª Habita noticia de loco, incidit pertinenter tractare de motu locali, cuius materia est locus; et contingenter de aliis. Sed incipiendo a priori, supponatur quod motus in communi sit actus vel forma quo mobile formaliter movetur. Et est duplex, scilicet *subitus* et *successivus*. Successivus, ut *motus localis*, *alteracio*, *augmentacio*, vel *diminucio;* et subitus, ut *generacio* vel *corrupcio* substancie. Et patent descripciones istorum.

From the consideration of place, we pass to that of local movement. Definition of movement in general. It is divided into *instantaneous (generation* and *dissolution)* and *successive (local movement, variation, increase,* and *diminution).*

Motus autem localis, quo ad eius principium subiectivum, dividitur in motum *per se* et motum per accidens. Quamvis autem impossibile sit aliquid moveri, nisi moveatur per accidens, tamen ad propositum restringitur motus per accidens ad motum localem, sine eius per se existencia vel sufficiencia ad replendum locum: ut forme dilate cum subiectis motis, et quecunque partes quantitative. Sed per se movetur localiter quecunque per se substancia corporea que ex inclinacione eius intrinseca movetur, ut corpora.

Local movement is either *substantial* (as that of a substance) or accidental (as that of an accident).

Et hoc dupliciter; vel concomitante violencia ab extrinseco, sicut est in pulsione, traccione, veccione, et vertigine; vel sine violencia, ut est in motu celi et ut creditur in elementis motis ad sua loca naturalia cum iuvamine removentis medium prohibens et influencia celi que generavit elementum et dedit sibi talem appetitum. Probabile tamen est quod omnis motus localis istorum inferiorum est cum violencia; ut aliquod corpus movetur sine quadam naturali inclinacione.

Substantial movement is *violent* or natural

(and all movement here below is probably more or less violent).

Sed per se motorum aliquid movetur *per se et ex se*, ut animata que possunt principiari motus suos sine motivo extrinseco simul existente cum illis; et hoc vel sine aliquo motivo extrinseco, ut homines et celum (si sit animatum), vel cum movente obiective extrinseco apprehenso; sicut animalia. Inanimata autem mota naturaliter per se, cum quieverunt, non habent de se sufficienciam ad inchoandum motum; ut lapis non

*Self-proceeding* (either self-determined or not)

or proceeding from an extrinsic cause.

1. hō B; *ib.* fai$^{te}$ B. 5. *After* sufficiant *a blank space for 4 words* B. 19. exn$^{a}$ B. 23. cor$^{u}$ B. 28. influencie B. 38. mõlia B.

surgit post quietem, sicut facit bestia memorans obliti sempiternaliter immutantis. Semper tamen ab influencia celi vel alio sempiternaliter movente moventur mutabilia nota; ut patet de motis ad generandum sibi simile in certo tempore anni, vel prosequentibus delectabile aut fugientibus tristabile. Homo autem, cum anima sua non subiacet necessitata motibus astrorum, potest movere se localiter contra inclinacionem extrinseci. Ideo celum et homo perfecte possunt moveri ex se. Et movencium se quedam moventur $2^{m}$ se tota, quedam sunt subiecta prima motus, et quedam $2^{m}$ partem, ut mota quorum partes quiescunt.

Some bodies are moved as wholes, some as subjects of movement, some as parts of wholes.

Ex istis divisionibus bene notatis patet quod impossibile est quicquam moveri localiter, nisi ab alio moveatur. Si enim sit corpus quod movetur, tunc vel movetur ab extrinseco et sic ab alio; vel a parte eius mota, cum impossibile est signare totum mobile motum, nisi pars eius per suum motum faciat totum moveri, eo quod talis pars sufficeret per se denominare totum moveri, et non stat illum parcialem motum subduci, nisi vel totum non moveatur vel alio motu moveatur. Ideo certum est quod motus talis partis | est causa B 103b quare totum movetur, et per consequens totum movetur ab alio. Si autem indivisibile moveatur, vel violente aut per accidens movebitur (et sic ab alio), vel ex naturali inclinacione, et per consequens gracia alicuius finis, et sic ab alio.

Nothing can be moved locally, unless it be moved by something else. It is either a body or an indivisible being; if the first it is either moved from without, or from some part of itself which itself requires to be moved by something else. If the second it is moved against or beside or according to its nature.

Et ex istis, cum paucis addendis, concludi potest quod est dare primum motorem immobilem, indivisibilem, et eternum. Supponendum enim est ex sensu corpora celestia moveri localiter, ut patet de astris. $2^{o}$ supponatur [quod] totum agregatum corporum motorum, sicut et totus mundus sit causatum finitum; quia, si esset infinitum, nichil potest ascendere vel descendere, cum non esset aliqua differencia loci supradicta. Omnes enim ille differencie supponunt medium. Istud patet de spera corruptibilium mota a celo, et de parte celi inferiori mota ab eius parte superiori, et non econtra; quia tunc moveretur celum valde difformiter quo ad tempus propter diversitatem motorum, et esset mutua dependencia in eodem genere causandi,

This proves that there is a First Mover of all things, motionless, indivisible, eternal. The sky moves, and it is finite: both are certain truths. The superior parts of the sky move those below, and not vice versa.

2. ſpu͡aʳ ı͡ mut͡ᵉ B. 3. ſpn͡aʳ B. 30. ex͡ᵃ B. 32. quod *deest* B.

et per consequens idem prius se ipso. Istis suppositis, patet quod est dare corpus ultimum motum ex 2ª suppositione; et illud movetur ab alio ex conclusione, sed non a corpore inferiori ex proxima supposicione; ergo a motore eque primo vel priori dato mobili. Et illum oportet esse primum motum, sicut suum mobile est primum mobile.

There must, therefore, be a first mobile; and this first mobile is moved by another.

Hic potest fingi quod primus motor est forma extensa primi mobilis; vel 2° quod spera superior movet inferiorem, et econtra propter concathenacionem eorum 2ᵐ concentricitatem vel excentricitatem; vel 3° quod eiusdem orbis quelibet pars moveat aliam, sicut est de trocho circumducto, qui eternaliter moveretur, si non impediretur a corrumpente, nec ab extrinseco collidente nec ab appetitu quem forma habet ad quiescendum. Cum ergo ista non possunt fingi in celo, videtur quod ad perpetuitatem motus celi non oportet ponere intelligenciam moventem, et per consequens non alium deum a corpore celesti.

It may be said that the First Mover is the form of the first mobile coëxtended with it, or that the inferior bodies react upon the superiors, or that one part of the world turns another like a top that would move for ever, were it not for friction. So God is not necessary.

Omnia ista tolluntur per hoc quod celum regulariter difformiter movetur, ac si esset unum proporcionaliter motum; quod nulla trium viarum potest solvere. Nec est philosophicum ponere talem violenciam in celo. Sed 3° tollentur dicte ficticie per [dicta] alibi. Probatur quod oportet totum genus cause materialis esse propter causam formalem, et totum genus cause formalis esse propter compositum quod est per se efficiens; et totum genus talium oportet esse propter causam finalem; et sic primam causam oportet esse causam finalem et non corpoream, quia tunc dependeret a partibus et haberet causam ipsa priorem. Omne ergo corpus habet finem ipsum limitantem, gracia cuius est sic activum, cum non potest esse tam ordinatus motus nisi ab ordinante preter corporeo, quem oportet perfeccius cognoscere suum ordinatum quam homo suum ordinatum, sicut operacio nature est perfeccior operacione artis. Corpus ergo primum, cum non 2ᵐ se totum ordinat, habet aliquid in eo quod ordinat alia, quod non potest poni corporeum propter eius operacionem et perfeccionem. Est enim perfeccius primo corpore, cum sit finis ordinans ipsum et omnia alia ordinata; et per consequens

*Answer.* All these subterfuges are met by the fact that the sky moves regularly and yet not with a uniform movement; for which they cannot account. The first cause cannot be extended; it would depend on each of its parts, and be caused by them. Matter cannot direct itself to its own end; there is therefore one who directs it, and who is not matter, nor form, nor having quantity.

13. troco B. 24. dicta *deest.* 28. tlim̃ B. 34. corᵉᵒ B.

Immovable and cause of eternal truths, God is also eternal.

nec est eius materia, nec forma, nec pars quantitativa. Est ergo indivisibile. Et cum non possit | moveri ab B 104[a] alio, patet quod sit immobile, et cum sit prima causa et necessario sint veritates eterne, patet [quod] est eternum, sive mundus incepit esse, sive non.

Aristotle's view on this subject is distasteful because of his strange terminology and vague hypotheses. The philosopher can have no doubt whatever as to the necessity of admitting one First cause of all.

Sermo autem Aristotelis in ista materia est multum insipidus propter extraneitatem terminorum et supposiciones multas incognitas. Certissimum tamen est philosopho quod, extra totum mundum et totam multitudinem causatorum, oportet dare causam illius tocius multitudinis, quia aliter esset causatum sine proporcionali causa. Nec possunt esse multe tales cause finales illius multitudinis eque primo causantes, quia tunc multiplicarentur gracia speciei prioris et causantis eadem, sicut patet ponentibus universalia.

Movement is either *simple* or *compound*; simple when it is one natural movement of any physical thing; compound, when it proceeds from a vital principle: as walking, &c.

Secundo autem dividitur motus localis in comparacione ad eius puncta et materiam in ipso aquiribilem; ut alius est motus *simplex*, et alius est motus *compositus*. Simplex autem in proposito vocatur motus naturalis, homogenius, corporis naturalis; et motus compositus est motus competens animato a forma superaddita; ut progressio, repcio et volatus competunt animali. Et istos motus comitantur multi motus diversarum specierum et multe quietes. Ideo totum agregatum vocatur motus compositus.

Simple movement is *straight* or *circular*. The latter alone is believed to be perpetual, and is the most perfect movement that is possible to matter.

Motus autem simplex quidam est rectus, ut ascensus et descensus, 2$^{m}$ divisionem gravium et levium; et quidam circularis, ut motus corporis. Neutri perpetui: solum enim talis motus creditur esse perpetuus. Ideo principalissime competit corpori circumferri perpetuo, propter proporcionalem perfeccionem. Quod si aliqua pars orbis celestis ascenderit vel descenderit, hoc erit 2$^{m}$ proporcionem circuli, et propter inclinacionem alterius cui inexistit, et non propter situm alciorem vel bassiorem in quo appetit quiescere, sicut gravia et levia.

To circular movement there is no contrary; it can coëxist with upward or downward movement,

Unde, 2$^{m}$ philosophos, motus circularis non habet motum sibi contrarium, quia motus circularis potest per totum inesse corpori moto per totum ascensum vel descensum. Ideo non contrariatur illis, cum eidem

4. quod *deest* B. 17. pu$^{ca}$ B; *ib.* aq'ri$^{lem}$ B. 20. $\overset{\text{m}}{\text{ul}}$ *after* corporis B.
30. pu' $^{me}$ B. 32. cor$^{is}$; $\overset{\frown}{\text{orb}}$ *above* B.

subiecto primo possunt isti simul inesse. Et 2$^{m}$ astronomos, motus circularis ab oriente in occidens compatitur secum per totum subiectum sic motum, alium circularem motum ab occidente in oriens; et multo magis alios motus circulares super diversos poles. Ascensus autem et descensus contrarii sunt; quia sunt due species motus quas impossibile est idem singulariter per se motum simul et semel subiectare primo. Nam stat multipliciter simul tempore ascendere et descendere, sicut et corpus non multipliciter 2$^{m}$ partes, sed non simul per totum. Unde, 2$^{m}$ philosophos, non solum 2$^{m}$ terminos contrarios sed penes intencionem finis penes motum medii et motus quibus adquiruntur illi termini, attenditur, motuum contrarietas. Nec sequitur ex istis tunc motum circularem esse perpetuum, sed pocius probabiliter infert oppositum, cum motus celi non sit solum propter finem habitum placendum, sed propter finem habendum, ut perfeccionem universi in produccionibus animarum; et cum hoc non possit procedere in infinitum, philosophis est ponere quod aliquando cessabit motus celi.

and circular movement from east to west and from west to east may also coëxist.

But ascent and descent are contrary.

Not that the same body cannot ascend and descend at the same time; but the same body *as a whole*, cannot.

Yet though without a contrary, circular movement is probably not eternal; it is for an end, and that end attained, it will cease.

Sed pro specificacione motuum sunt 3$^{a}$ notanda. Primo quod aliquis est *per se* terminus ad quem motus, et alius non *per se*. Per se terminus motus est denominacio accidentalis quam oportet mobile ut sic motum ad
B 104$^{b}$ quirere | et in fine motus habere ut ubicacio localiter moti. Terminus autem ad quem, sed *non per se* terminus motus, est quecunque forma que in fine primo habetur a moto, quam non oportet ipsum formaliter adquirere tanquam principium sui motus, sive insit extrinsece et non formaliter ut locus, sive intrinsece et formaliter: ut sanguis post laborem; et quodlibet contingit esse tales terminos accidentales motui. 2$^{o}$ notandum quod de motu, sicut de aliis naturis, contingit aliquas esse per se species, et alias species per accidens; que quidem species sunt capte ab accidentibus separabilibus ac inseparabilibus; ut multe sunt species religiosorum et tamen omnes sunt eiusdem speciei substancialis. 3$^{o}$, videtur michi quod species motus naturalis vel essencialis maxime attenditur penes materiam motus; et per consequens penes *per se* terminum *ad quem*, cum

Three points must be noticed here. 1$^{rst}$ That the terminus of any movement is so either *by itself* or *not;* i. e. a terminus to attain which the movement is made; or one which is attained, but which was not the principle of the movement.

2$^{nd}$ There may be essential and accidental species of movement, according as they are distinguished by something essential or accidental. What principally specifies a movement is its proper and essential terminus.

10. mltr' B. 20. p͡hi͡e B; *ib.* al͡η B. 32. fa$^{uis}$ B.

omnis talis sit eiusdem racionis cum materia primo adquisita. Ex quo patet quod adquisicio materie, ascendendo vel descendendo, circulariter vel recte, naturaliter vel violente, licet principient motus disparium specierum per accidens, non tamen species naturales. Et patet quomodo contingit motus esse eiusdem speciei naturalis et disparium specierum per accidens; et contingit motus convenire ac differre $2^{m}$ plus vel minus de talibus speciebus.

Movements may thus be essentially of the same species, while they differ accidentally.

Sed obicitur, probando quod non sit possibile eamdem speram moveri per totum ab oriente in occidens, et econtra. Iam primo videtur, data possibilitate quod omnis orbis celestis movetur; quia si pars supra orizontem movetur ab occidente in oriens, sequens est quod pars sub orizonte movetur econtra ab oriente in occidens: et econtra. Ergo totus orbis eque movetur $2^{m}$ partes versus oriens sicut versus occidens; et econtra.

*Objections.* 1. The same sphere cannot move eastward and westward in its entirety; for while v. g. the part above the horizon turns eastward, the part below must turn westward.

$2^{o}$. Sicut qualibet pars orbis celestis oritur et occidit continue respectu diversorum orizoncium: ergo non refert ponere ipsum moveri versus orientem aut versus occidentem. Ymmo quilibet punctus est tantum per instans oriens vel occidens; et cum nullus punctus attinget alium, sequitur quod oriens non movetur versus occidens, quamvis oriens infinicies erit occidens. Quilibet ergo punctus in equinocciali, si movebitur versus alium, continue movebitur versus quemlibet alium; et sic continue movebitur versus occidens, versus meridiem, et quemlibet punctum equinoccialem cuiuscunque differencie. Et illud sequitur ponendo istas differencias fixas.

For different horizons, every part of the sky is rising or setting; so it matters not whether we say it moves to the east or the west; and thus any point is east and west at the same time. And thus the East moves towards the West; which is inadmissible.

$3^{o}$. Quilibet punctus in celo preter $4^{or}$ est orientalis, occidentalis, borealis et australis: ergo, non est nisi confusio dicere quod mobile movetur versus talem differenciam, cum non sit talis differencia fixa. Maior probatur per hoc quod in relativis tenet consequencia a comparativo ad simpliciter; sed quilibet punctus celi preter polum antarticum est in comparacione ad ipsum borealis; ergo quilibet punctus preter ipsum est borealis. Et sic de $3^{bus}$ aliis punctis iniciantibus $3^{s}$ alias plagas. Non ergo opponuntur terra borealis et australis, sed pocius relative convertibilia [sunt].

3rd It is confusing to say that anything moves towards a point of the compass, since the whole sky, except 4 points is at once east, west, north and south. For instance, every point in the sky, except the antarctic pole, is more or less to the north.

4. pu'ent B. 28—29 c9c3 dric B. 35. 9° B. 36. ergo *vro* est B. 40. sunt *deest* B.

4° plus accedendo ad mentes loquencium, videtur quod nulla spera inferior movetur versus oriens, quia est impossibile moveri aliquid continue versus ter-
B 105ᵃ minum fixum et re | cedere continue ab eodem. Sic enim contingeret muscam ascendere repente ab uno extremo lancee in aliud per hora, illa lancea $2^{m}$ se tota descendente per eandem horam velocius in qualibet proporcione signabili; et sic motus ascensus et motus descensus contrarii inessent eidem subiecto primo.

5ᵗᵒ, sic. Si planeta motu proprio precise tam velociter moveretur, sicut rapitur per orbem superiorem, tunc non moveretur; ergo multo magis nunc non movetur. Antecedens patet, quia tunc continue foret in eodem loco; ergo non moveretur localiter. Si enim mobile moveatur propter nisum suum, non adquisita materia motus, tunc omnis lapis vel grave mixtum continue moveretur versus inferius. Sed quid incredibilius de columpnis et aliis quiescentibus quam quod descendant continue?

6ᵗᵒ sic: si motus remissior inpedit aliqualiter reliquum, motus intensior plus impediret, et motus equalis simpliciter impediret. Sed motus orbis planetarum impediret motum raptus, cum longe velocior foret, illo subducto, quam est modo. Ergo motus simpliciter pares simpliciter se impedirent. Ergo multo magis motus raptus, adeo velocior motu proprio inferioris orbis, simpliciter impedit illum. Quilibet enim planeta tanto cicius describeret circulum suum circa terram quam modo facit, quantum est talis ortus porcionis circuli quem describit in die motu proprio sui deferentis: ut sol in anno solari frequencius quam modo circumrotaretur per unum diem. Et alii planete per plus vel minus $2^{m}$ proporcionem velocitatis sui deferentis. Et hoc videtur mirabile multum, quod mobile multum velociter movetur versus terminum fixum, et tamen, subducto illo motu, et quocunque supplente vicem eius, cicius veniente ad terminum suum quam modo faciet: ut sol in occidente existens cicius veniret ad terminum suum quam modo faciet; ut sol in occidente existens cicius veniret ad orizontem subducto proprio motu, cum per motum raptus

Nothing moving towards a fixed point moves away from it; thus none of the inferior spheres moves eastward. Otherwise if a fly crawled up a lance that descended at the same time the same being would have two contrary movements.

5ᵗʰ. A planet does not move so fast as its sphere does in a contrary sense; but if it did, it would then *not move at all.* There can be no movement without change of place.

6ᵗʰ. A slower movement of one part hinders the rest; a movement equally fast in a contrary sense would stop it. But then the movement of the planetary sphere, being far swifter, must destroy it entirely. If so, the sun ought to revolve round the earth one day oftener than it does; so of the other planets, if their movement is destroyed. Which seems astounding.

15. adq'ᵗᵃ B. 16. lp̄ B. 29. ts B. 30. d'fntᵖ B 33. d'fn̄tᵖ B. 34. multum *in marg.* B.

quam modo faciet. Non ergo habet illud racionem motus quod impedit eius subiectum adquirere eius materiam. Nec valet dicere quod descripcio concavitatis orbis superioris et non adquisicio situs sit motus localis orbis planete; quia talis descripcio non est motus, sed accidentaliter concomitatur motum; ut, si quis applicaret cultellum quiescentem ad lapidem molarem circumductum, quo usque tota superficies extima lapidis sit descripta, talis descripcio non est motus. Ergo per idem nec retrogradacio orbis inferioris nec descripcio sue concavitatis.

Thus the sphere has no power of hindering any planet from actually moving.

To say that local movement is merely change of site on the superior sphere, not real change of place, is false.

*General answer.* Logically speaking, this cannot be called movement. But it is equivalent, as regards astronomy; there is a tendency in each planet pass on to a different sign; it matters little whether this be called movement or no. If we extend the meaning of movement, we shall include actual change of place, tendency, change of position on a surface, delay, &c.

Pro isto videtur michi quod logice negandum est tales motus esse. Equivalent tamen quo ad conclusiones astronomi et finem quem intendit de uno loco et operacione astri in ista inferiora; sive ponatur talis nisus esse motus, sive non; quia verisimile est quod quilibet orbis planete habet nisum ut sit sub orbe signorum continue dispariter suppositus, saltem $2^{m}$ | planetam suum; ex B 105$^{b}$ quo nisu defeccio supponitur, modo quo convenit celesti horologio. Aliter enim planete non possent diversimode esse in signis diversis celestibus, sicut experti sunt esse. Unde, sic ampliando motum, contingit idem corpus habere quotlibet motus distinctos specifice; ut luna dicitur habere quinque motus, preter duos motus communes omnibus planetis, et quotlibet alios motus contingit ymaginari lunam habere in ymaginacione per diversos orbes motos super diversos polos. Istud tamen non haberet colorem, si omnis motus sit mobile. Tunc enim videndo mobile moveri, non videretur nisi precise illud quod videbatur, mobili quiescente: quod contradicit cuicunque sano iudicio. Extendendo ergo nomen motus equivoce ad motum proprie dictum, ad materiam motus, et ad quemcunque modum habendi corporis propter quem ipsum aliter movetur, ut sunt nisus, descripciones, tardaciones, vel quomodocunque aliter vocentur: respondetur ad argumenta.

1. The conclusion of this argument is probable; every part of the celestial sphere moves towards all the points of the compass.

Ad primum dicitur quod conclusio est probabilis, cum qualibet pars latitudinalis spere celestis mote sequitur ad aliam, et movetur versus oriens, occidens, et versus meridiem: et sic de infinitibus sitibus. Verumptamen, ymaginato quod est dare situs fixos, sive per totum mundum, sive in ultima spera, ut maior pars sapientum

15. quia *pro* quod B. 20. t$^{tbq}$ B. 25. in ymaginacione *in marg.* B. 27. ca$^{ie'}$ *or* ca$^{re'}$ B.

concesserat, et patet sequi ex dictis quomodo de loco vel situ est facile respondere. Nam celum $2^m$ emispirium supra orizontem nostrum movetur ab oriente in occidens et $2^m$ emisperium sub orizonte nostro movetur ab occidente in oriens e converso: et sicut idem ascendit et descendit $2^m$ partes, sic in proposito de motu ab oriente in occidens; et econtra. Sed notandum quod *oriens* quandoque sumitur pro illo situ inmobili in quo dextra pars celi creata est, et quandoque participialiter pro quocunque quod respectu illius oritur; et sic *occidens* nunc sumitur pro situ inmobili in quo sinistra pars mundi creata est, et quandoque participialiter, pro quocunque quod occidit. Et ista equivocacione plurimum laboratur. Nam notum est ymaginanti polos mundi et axem super quem rotatur, quod alium modum movendi habet quelibet pars orbis mota super orizontem nostrum, quam haberet movendo super eadem principia e converso; quia quelibet talis pars oriretur nobis in situ quem vocamus occidens, et paulative moveretur versus meridiem, quousque advenerit ad situm quem vocamus oriens fixum. Et proporcionaliter de partibus orbis motis sub orizonte. Ideo philosophi, specificantes modum movendi celi $2^m$ partes sensui suo notas, ut sunt partes supra orizontem nostrum, vere dicunt quod celum movetur ab oriente in occidens, et antipodes nostri vere dicerent quod celum movetur econtra a situ quem nos vocamus occidens ad situm quem nos vocamus oriens; sed situs qui est nobis occidens diceretur illis oriens: et sic de situ orientali. Ideo utrobique movetur celum versus occidens respectivum.
B 106ª Unde non obest illud | quod ultimo concluditur. Aliter tamen locuntur illi qui ponunt tales situs fixos, et onerosius ac brigosius illis qui negant tales situs.

But let us assume that there are certain directions that do not change. It is true that our part of the sky turns towards the West, and the other towards the East. But *Orient* may mean either *east* or *rising*; *Occident*, either *west* or *setting*.

If the world turned round the other way, every one of its parts would rise and set differently.

We say that the sky turns towards the west; the Antipodes would say the contrary; but what we call the West is the East to them. Thus in both cases the earth moves respectively towards the West.

Ad $2^m$ dicitur quod argumentum est verum, cum quelibet pars orbis celestis corporee magna oritur et occidit $2^m$ partes respectu diversorum. Et sic est tam oriens quam occidens (intelligendo participialiter); et sic quilibet punctus oriens continue erit oriens vel occidens, quia continue novo ortu et occassu instantaneo respectu diversorum orizoncium. Et sic ortus successivus componetur ex instantaneis. Nec sequitur ex argumento

2. It is true that every part of the sky is rising and setting for different horizons; but here Orient and Occident have the sense of participles.

9. ꝑticiʳ B. 14. notũꝫ B.; *ib.* ymagiᵗⁱ B. 17. p'nª B.

We have already postulated that whatever is above our horizon moves westward. And I admit a fixed Eastern and a Western sphere, in each of which the stars have peculiar efficacy. *Aries* will thus be always in the East, and *Libra* in the West. Thus every sign in the Zodiac moves towards every other, but never to meet; for they do not move in a contrary direction, as two bodies moving on one straight line towards each other. It is on account of this movement that we must admit fixed directions.

consesso conclusio deducta; quia, ut dictum est, intelligitur quod pars celi supra orizontem nostrum movetur versus occidens; quod est verum. Unde credo quod est dare oriens et occidens inmobile, in quorum primo astra habent ampliorem efficaciam, tanquam partes dextere, et in 2° habent efficaciam quasi partes sinistre: sicut et signa et astra appropriata illis partibus. Unde Aries, quorsumcunque volvatur, est in dextera parte celi, et Libra in parte sinistra. Et sic conceditur quod quilibet punctus in equinocciali movetur continue versus quemlibet alium. Nec frustra, etsi nunquam attingat illum; quia non hoc intenditur. Sicut ergo unus insequens alium movetur versus eum, sed non contra eum, sic est de punctis equinoccialis, qui moventur ut ponitur. Nec sequitur, si quilibet illorum punctorum movetur reciproce versus quemcunque relicum, quod moventur contra se; quia solum mota motibus contrariis versus eumdem situm moventur contra se: ut A et B, mota super eamdem lineam rectam versus C situm, vel super lineas rectas angulariter concurrentes ad C situm. Tales enim motus sunt incomplete contrarii. Nec video quomodo aliud insequens reliquum et nunquam sibi appropinquans movetur versus ipsum, nisi sit dare situs fixos, locantes mota quibus sit sic appropinquacio. Non tamen dicitur quod idem C movetur versus C vel situm in quo est, quamvis inmediate ante hoc movebatur versus illum situm, et inmediate post hoc sic movebitur: quia nichil movetur versus aliud localiter, nisi a quo distat. Unde probabile est dicere quod aliquid movetur versus aliud per lineam obliquam, attamen recedit ab eodem dum per tempus fiet continue distancius etc.

3. The consequence is false we admit fixed directions; to say they are impossible, but grant something equivalent, is absurd. Thus almost the whole sky belongs to all the four points of the compass at once.

Ad 3$^{m}$ dicitur quod consequencia non valet. Unde concedo tales esse differencias fixas. Nec dubium quin negantes tales esse differencias, sed [admittentes] quod equivalet ac si tales essent, intricabunt seipsos, cum nichil potest equivalere impossibili. Et sic conceditur quod quilibet punctus in celo, preter aliquem 4$^{or}$ nominatorum est australis, borealis, orientalis, et occidentalis; ut tangitur in argumento.

4. The very same motion may approach

Ad 4$^{m}$ negatur argumentum; quia non solum per diversos motus, sed per eundem, contingit aliquid movere

1. dedcta B. 34. admittentes *deest.*

versus terminum fixum et recedere ab eodem, ut dictum est proximo. Nec video quin, extendendo nomen motus (ut dictum est), concederetur quod musca moveretur contra lanceam; non tamen ascendit. Ideo illi motus sunt compossibiles, et non contrarii; sicut sunt ascensus, et descensus. Ascensus enim dicit adquisicionem supe-
B 106b rioritatis, et descensus adquisicionem | inferioritatis, que repugnat simul inesse eidem subiecto primo et per se. Nota tamen quod motum repcionis consequuntur multi motus, et multe quietes organorum. Ideo motus contra navem eque velociter contrarie motam non [est] continue precise in eodem situ. Unde differt motus musce contra lanceam a motu orbis inferioris contra superiorem in hoc quod alter primorum est violentus, sed neuter 2orum motuum est violentus. Ymmo uterque illorum motuum est per totum subiectum suum eiusdem racionis, et sic non est de motu animalis repentis vel quomodolibet moventis se contra suum deferens; quia partes eiusdem diversimode movebantur. Unde, ad cognoscendum generaliter motus contrarios, satis est quod sicut motus eiusdem generis propinqui, quorum species possunt successive inesse eidem subiecto primo et per se; sed repugnat quod simul sic insint. De motibus autem individuis non est cura. Unde, 2m Aristotelem, illi motus causantur penes terminos ad quos vel terminos versus quod contrarios. Quamvis enim Sor motus versus borream, et Plato, sibi obvians, movendo contrarie versus austrum, moveantur ad eundem terminum, moventur sibi sub differencias fixas contrarias. Ideo dicuntur motus contrarii; sicut Aristoteles vocat ventos contrarios qui moventur differenter super eandem dyametrum ad differencias oppositas. Nec obest quantumcunque locum distantem a reliquo esse sibi contrarium, quamvis sit quantitas; quia generalis racio formarum est quod sint eiusdem generis propinqui qui non possunt simul et semel, sed successive, adquiri eidem subiecto primo. Et sic omnia privative opposita vocat Aristoteles contraria, quia sunt forme eiusdem generis, una per se et alia per reduccionem, qui mutuo se expellunt; et sic contrariantur quecunque loca distancia. Aliquando autem restringitur contrarietas formarum ad racionem contrarie

to and recede from a goal at the same time. And, in the case put, the fly does not indeed ascend the lance, since that means increase of distance from the centre; but it may be said to move against it. The movement of crawling is made up of many motions and rests. The movement of the fly is violent, i. e. against gravity; that of the inferior sphere is not so. Again the movement of both spheres is of like nature; that of the fly and lance is not so. Contrary movements are such as cannot coëxist in the same subject. They take place where their termini are contrary to each other.

Every place distant from another place is contrary, in so far as the same body cannot be in both at the same time.

They are privative forms, which mutually exclude one another.

9. r'pcoîs B. 11. nõ *or* aõ B; *ib.* est *deest* B. 31. duce' = dupliciter? *pro* differenter B.

activitatis. Et talis non inest quantitatibus, cum non sint de genere activorum. Loca autem, quamvis non denominent formaliter corpora individua locari, sed communia, tamen denominant efficienter corpora individua locari, causando ubicaciones formaliter denominantes. Multiplicatum ergo potest simul esse in locis contrariis, sicut et corporeum non multiplicatum $2^{m}$ partes. Sed nichil potest simul et semel per se et primo esse in locis contrariis. Et ex istis patet quod sagitta mota recte et vertigine movetur $2^{ci}$ motu in specie simul, quia motus rectus contrariatur ei qui est econtra ad differenciam oppositam, et non illa circumduccio, sicut patet ex descripcione motuum contrariorum superius posita.

There is an exception for multipliable beings and also for matter, that can be partially in different places; but not wholly and at the same time.

Ad $5^{m}$ negatur argumentum. Nec sequitur mobile non moveri localiter, etsi maneat continue in eodem situ; quia preter motum localem quem consequitur adquisicio et deperdicio situs, est dare alium qui est limitacio passiva ad intendum versus aliam differenciam, sive mobile quiescat localiter, sive non; et tali motu movetur lapis et quodlibet grave violentatum a situ quem appetit continue versus deorsum. Nec est talis motus univoce velox cum motibus ponentibus mobile appropinquare fixo, sicut sunt ascensus et descensus; sicut forte non sunt univoce motus cum illis. Et cum tot modis dicitur unum oppositorum quot modis et reliquum, patet quod est dare quietes tot modis dictas istis motibus oppositas | Unde, sicut stat idem alterari B 107[a] et quiescere localiter et econtra, sic stat idem per totum moveri localiter et quiescere localiter multis motibus et multis quietibus, sed non oppositis.

5. The argument is not good. Because there is no movement, i. e. change of place, it does not follow that there is no movement, i. e. tendency to move, whether there is or is not change of place.

This sort of movement has not the same signification as 'ascent'; perhaps none have the same; and there are rests of as many sorts as there are movements.

Unde falsum est quod *quiescere* includit negacionem omnis motus a quiescente, cum sufficit ad quietem mobilis quod ipsum natum sit moveri tali specie motus pro tempore pro quo non movetur illa specie: ut, si terra naturaliter pure descendit in vacuo vel medio quocunque quantumlibet velociter, tunc ipsa perfecte quiescit a motu circulari vel motu violento contrario. Et sic, si corpus movetur, tunc quiescit, et non proprie

*Rest* does not imply no movement at all, but it denies one sort of movement at a certain time; if the earth were simply to descend, it would rest from all other movements. If any body moves, it rests, but not *vice versa*.

6. mīti$^{\widehat{tu}}$ B. 17. $\widehat{q}$, B. 23. v'te B. 25. v'te B.

30. *Tunc quiescit.* Because it has not *all* possible movements.

e converso, cum deus potest servare semper corpus a motu proprio, sicut potest movere celum motu despari, et facere ipsum per totum quiescere. Ex quo patet quod quies est naturaliter prior motu tali, cum sit eius perfeccio, gracia cuius habendi est actus ille incompletus, quo usque veniatur ad motum perfectum. Nec oportet credere opinioni wulgari, neganti tales motus; quia wulgus non concipit motum et quietem nisi localem, propter famositatem. Unde laicus negaret tale alteratum vel augmentatum, et quietem localiter moveri; nec percipit quod alteracio et alteracio sunt species motus Sentencia ergo wulgi est vera, cum sit naturaliter innatum illis sic cognoscere; sed aliter ampliant philosophi terminos motus quam plebei. Nec omnes philosophi extendunt nomen motus ad tantum ut iam extenditur, sed solum illi qui innituntur salvare motus proprios planetarum.

We must neither admit nor deny as false the common opinion, that admits only change of place to be movement; the learned and the unlearned use the word in a different sense.

Unde Alpetragius, negans tales motus, putando salvare omnes experiencias per unum motum ab oriente in occidens, sed quod orbes inferiores tardantur, racione cuius retardacionis fiunt coniuncciones et opposiciones, incidit in hoc inconveniens quod omnes planete describerent orbes parallelos polis mundi; et sic planete non moverentur in circulo obliquo, causando estatem et hyemem, eclipses et generaciones tali modo quo experiencia docet fieri ab illis; quia motu primi mobilis, quantum in se est, non reciperetur $2^{m}$ circulum non parallelum polis mundi, sed motus partis orbis super polos declinantes a polo mundi, facit illam partem declinare ab austro in boream, et econtra. Ut, ymaginato quod sol nunc sit sub equinocciali, et solum moveatur raptu primi mobilis, non est racio assignanda quo unquam declinabit ab equinocciali; sed quandoque foret sol extra quodlibet 12 signorum; ut per tempus totum quo exierit a Libra quo usque redeat ad Libram. Et hoc certum est recte ymaginanti.

There is an opinion that denies that the planets have any movement of their own, but are merely slower than the superior sphere. But this will not hold; for then the planets would describe orbits parallel with the equator, not oblique, as they do. For instance, the sun, being in Libra, would leave the ecliptic and not return to it until the next year at the same time.

18. alpetgi9 B. 35. ꝑte$^{m}$ *pro* per tempus totum B.

18. I can find no name at all answering to Alpetragius. There is, however, a certain *Albricus,* who died in 1220, according to Franklin's Dictionary. — Some words are probably wanting in this sentence; but as the sense is clear enough, it may be merely an ellipse.

We should, therefore, call movement every change produced in one body by another, which makes it in any way to differ from what it was. Thus it is said that 'intelligences' are moved by God to give motion to their spheres. So are all creatures moved by God, in every change that they undergo. In this sense it is said that every motor is *moved* by the mobile it touches; i. e. friction *changes* it, diminishing its power.

Melius ergo est extendere nomen motus ad omnem limitacionem passivam ab alio; racione cuius limitacionis dispariter se habet quo ad situm, qualitative vel quantitative. Et isto modo dicunt philosophi intelligencias moveri a Deo, tanquam amato et desiderato, ad movendum active suos orbes: quod si non facerent, cum veris paribus que iam ponuntur, dependerent de bonitate accidentali, displicendo Deo. Et breviter omnis creatura movetur sic a Deo, saltem per tempus, inveterascendo, perficiendo in bonitate accidentali, vel deficiendo; et tali motu dicunt philosophi omne movens phisicum communicans in materia cum suo motu quod tangit in movendo, moveri; quia non dubium quin omne tale | continue debilitatur in agendo, et sic B 107b continue deperdit qualitatem. Non tamen oportet quod intelligencia, ut sic, adquirat continue successive qualitatem. Nec oportet quod calidum calefaciendo frigefiat $2^{m}$ aliquam eius partem; nec oportet motum ab obiecto adquirere continue successive aliam qualitatem; sed sufficit quod limitetur ab illo ad accidentaliter eliciendum actum vel servandum, racione cuius est melius vel peius, vel aliter denominatum quo ad acquirendum $3^{m}$ gradum materie motus quam foret subducto limitante ad taliter apprehendendum.

Yet there is no necessity for the agent to acquire any new quality; it is enough that it is determined by its object to produce or redintegrate an act. There is a movement in the mind that elicits its acts, but they are not on that account qualities. The movement — either of generation or of redintegration

Unde vane ponunt aliqui actus anime esse qualitates, propter hoc quod ad illas est motus. Ad illos enim non est motus tanquam ad per se terminos, quamvis necessario omne elicitivum actus sit mobile, sicut nec est motus ad *movere* intellective; nec moverentur talia proprie, sed extensive, loquendo de motu. Quod patet ex hoc quod cognitivum movetur continue ab obiecto, dum non continue noviter recipit speciem vel actum ab eo. Ideo motus quo movetur est permanens, et non consistit in successione, quamvis, pro illo instanti quo intendit elicere actum, vel generabit speciem vel servabit speciem aut habitum prius receptum. Ideo tunc inceperunt tam motus instantaneus quam permanens. Unde,

7. v$^{is}$ B. 32. moverit *in marg.* B. 35. epit *in marg.* B; *ib.* gnat B.

35. *Servabit.* I have used the word *redintegrate,* because Wyclif seems to allude to an idea that, by a given act, is not generated but merely recalled, or as the moderns would say, redintegrated, though the sense is perhaps somewhat different.

cum non sit possibile talem actum elicitum esse nisi vel generetur vel servetur qualitas illo actu, non mirum si auctores dicunt omne elicitivum actus esse mobile (subaudi motu communiter dicto, et non motu proprie dicto).

— exists only at the instant when the act is elicited.

Et si queratur de velocitate talium motuum, dicitur quod aliqui sunt non veloces cum sunt permanentes, et alii successivi sunt veloces; quod mensuratur communiter penes lineas vel materias quas adquirent sua mobilia. $2^{m}$ illos motus, si moverentur, illis non impeditis. Sed videtur michi quod pari evidencia omne mobile violentatum continue existendo in eodem situ multum velociter moveretur et breviter; quod omne mobile eque velociter moveretur sicut posset moveri in vacuo vel in pleno, cum omnibus aliis sequentibus ex istis. Nam si A motum contra B in $2^{plo}$ tardius ipso B, intendatur motum suum quousque moveatur in $2^{plo}$ velocius ipso B uniformiter moto, pro instanti medio movebitur eque velociter cum B; et tunc, continuando illum gradum motus, non mutaret situm suum. Cum ergo omne mobile naturale impeditur ne tam velociter moveat se sicut potest, videtur quod sic velociter movetur cum impeditum non impedit a velocitate motus, ut dicit responsio. Ideo videtur michi probabile quod tales motus locales versus aliquos terminos fixos per quos non acceditur appropinquando illis, non sunt veloces, quamvis per accidens taliter sint spacia illis descripta.

It may be asked: What is the rapidity of movement, taken in this sense? Some have no swiftness, others have; and this swiftness is measured by the space they would pass through, if not hindered. A body that is kept in the same place against its natural tendency is thus in movement, for it would move faster and faster were there no impediment.

Ad $6^{m}$ dicitur quod stat motus impedire se mutuo quo ad effectus extrinsecos, causatos a motibus, sed non quo ad velocitatem vel tarditatem illorum motuum; | quia, quocunque motu signato, si foret velocior B 108ª vel tardior, tunc non foret idem motus in numero, eo quod vel variaretur materia motus, vel tempus, vel utrumque. Et per consequens non impediret vel impediretur; quia non esset. Motus tamen communes possunt se mutus impedire. Unde, pro materia argumenti, videtur michi quod non propter equales motus contra se impeditur mobile moveri. Ut, ymaginato quod sol innitatur moveri tantum motu proprio, quantum orbis rapiens nititur movere ipsum contra

6. Different coëxistent movements only hinder the external effects caused by them, not their respective swiftness. If they did, they would no longer be the same movements, but destroyed. If the sun went backwards as fast as its

13. ber B.

sphere went forwards, it would remain seemingly motionless. Both sphere and sun would move, but we could not call that movement properly *swift*. But the sun would move from north to south with an apparent movement. Some deny that movement is possible in a contrary direction to the sphere. But then the sun would have a real movement from south to north, not from west to east. We cannot admit that a movement having a certain rapidity would, if more intense, have none. Thus I think that eastward and westward tendencies contradict each other. And we can fancy circular motions that would be contrary if they existed in the sky; but none of the six movements — ascension, descent, &c. — are contrary to the circular movement.

occidens, ita quod per A tempus sit in meridiano nostro; ego non video quin uterque illorum foret motus; sed non uterque velox vel tardus, quamvis valde celeriter describeretur circulus in orbe superiori utroque istorum. Motus tamen proprio moveretur sol velociter ab austro in boream, vel econtra. Ideo dicunt aliqui quod non est possibile orbem inferiorem moveri contra superiorem super eosdem polos, ita quod continue maneat idem punctus in eodem situ, et motus continue localiter. Illud tamen non placet michi, eo quod tunc diceretur sol habere motum ab austro in boream, vel econtra, et non ab occidente in oriens. Videtur ergo quod motus, qui est passio, sit prior quocunque mobili, quam motus formaliter successivus, qui est velox vel tardus; quia si aliquid movetur illo motu, ipsum limitatur et patitur se taliter denominari quo ad quantitatem vel qualitatem; et non econtra.

Ideo non est concedendum quod iste motus, qui iam est velox, erit non velox per eius intensionem; vel econtra motus non velox erit velox; quia isti motus sunt diversorum racionem, cum totum genus unius presupponit totum genus alterius. Et ita videtur michi quod, sicut motus qui est nisus ab oriente in occidens contrariatur nisui ab occidente in oriens, sic motus successivus ab oriente in occidens contrariatur motui successivo possibili qui dicit formaliter adquisicionem. Ymaginabile tamen est motus circulares esse, qui si possent successive inesse celo, essent contrarii. Sed nulli sex motuum localium rectorum est motus circularis contrarius; ut non ascensui vel descensioni, cuiusmodi sunt motus a borea in austrum, et econtra; nec motui recto a dextro in sinistrum vel econtra, ut sunt motus ab oriente in occidens, et econtra; ut motui recto ab ante ad retro et econtra, ut motus a principio Cancri versus Capricornum, vel econtra; eo quod quilibet istorum motuum compatitur secum per totum motum circularem; et sic de motibus circularibus compacientibus se in eodem subiecto, dum non directe fuerit versus differencias oppositas.

One thing is certain; in the sky there is nothing violent.

Sufficit ergo philosopho quod celum per totum sit exemptum ab omni violencia; ex quo verisimile est quod tam orbis inferior quam orbis superior describeret tam celeriter circulum sicut modo, subducto alterutro illorum motuum Ideo non est de illis, sicut est in casu

Zenonis, in quo ponitur spacium recte moveri contra mobile motum.

Ulterius conceditur quod sol [motus] motu proprio versus oriens, tardatur attingere oriens; et sic de aliis mirabi- B 108b libus conclusionibus sequentibus. | Si tamen motu proprie dicto precise moveretur versus oriens, tunc non sic tardaretur; quia moveretur $2^{m}$ aliam porcionem circuli versus oriens.

We may admit that the sun, moving eastwards by its own movement, delays in reaching the east; and so on.

Ulterius conceditur quod descripcio talis non est motus, sed unum accidentaliter habens motum. Nec quelibet adquisicio situs est motus, cum stat aliquod subito adquirere vel deperdere situm per continuacionem vel discontinuacionem partis quantitative; ut patet de augmentato vel diminuto, de multiplicato, vel de de-multiplicato. Motus ergo qui est limitacio passiva etc. est passio; sed motus formaliter successivus et velox videtur michi non esse passio; sed motus accidentis passionis, ut motus localis proprie dictus dicit suum mobile, vel aliam partem primo moveri localiter, et per consequens ipsum, vel aliquam eius partem prius fuisse in situ in quo post non est per successivam et parcialem situs adquisicionem, ad quam sequitur adquisicio ubicacionis. Ideo dicit commentator quod componitur ex multis affirmacionibus et multis negacionibus; quia tales presupponuntur adesse tanquam principiantes, sed non quantitative componentes, cum sit forma simplex.

Also that the orbit described on the celestial sphere is not movement, but a thing that moves.

Movement, so far as it is passive, is a passion; not movement with actual change of place. It implies that the subject or a part of it occupies a place that it did not occupy before. Averrhoës says that it is made up of many affirmations and negations.

Sed diligenter notandum quod motus quandoque sumitur agregative pro multis motibus agregatis, eciam discontinuis, vel quo ad tempus vel quo ad subiectum; sive sint unius speciei, sive sint disparium specierum: et illo modo dictum est progressionem esse motum compositum. Quandoque autem sumitur simpliciter pro motu cuius quelibet pars divisibilis vere continuatur cum reliqua et est eiusdem racionis, ut motus puncti in equinocciali. Primo modo est augmentacio motus, et forte omnis motus citra velocissimum.

'Movement' is sometimes collective, and means many movements; sometimes it means a movement of which each part is a sequel to the other.

Tercio principaliter dividitur motus $2^{m}$ suas passiones, racione temporis mensurantis; ut aliquis est uniformis et aliquis difformis; et uterque subdividitur quo ad subiectum et quo ad tempus. Quo ad subiectum est

Movement is either uniform or varied; uniform in its subject if each part of the

3. motus *deest* B. 39. conformis B.

thing moved has the same velocity;

varied in its subject, if one part moves faster; uniform as to time, if the velocity is the same at every part of time; varied, if the velocity is greater or less in the different parts of time.

These temporal and quantitative parts are equal to the whole movement; but the first are equal in quantity, and the second in duration.

motus uniformis, quando quelibet pars eius quantitativa quo ad molem est eque velox sicut aliqua talis, sicut est de motu lineari per equinoccialem circulum subiectato. Et dicitur difformis quo ad subiectum, quando una eius pars quantitativa $2^{m}$ molem est reliqua tali velocior, ut est de motu colubri. Dicitur autem motus uniformis quo ad tempus, quando quelibet pars quantitativa quo ad successionem, que non est pars quo ad molem, est eque velox ut aliqua talis; sicut est de toto motu primi celi. Sed difformis dicitur quo ad tempus, quando una temporis pars successiva est reliqua parte successiva subiecti primo moti velocior; ut motus naturales gravium et levium, qui velocitantur in fine. Omne autem successivum extensum habet $2^{ces}$ partes quantitativas, sicut $2^{cem}$ quantitatem; scilicet quo ad molem et quo ad tempus. Et conveniunt iste partes in hoc quod utraque subiective, qua pars, est minor suo toto; ut medietas successiva motus est par toti motui et toti subiecto $2^{m}$ molem, et quantumlibet parva pars motus $2^{m}$ molem est equalis toti motui quo ad duracionem; et sic iste equalitates et inequalitates dicunter equivoce.

A humble logician may grant that the part is equal to and yet less than the whole. But it is well to call temporal parts duration, and quantitative, magnitude.

Humilis tamen logicus, non | querens apparenciam B 109[a] sophisticam, concederet quod infinitum parva pars quantitativa motus et suum totum sunt equalia, et tamen totum illud est quantumlibet maius sua illa parte. Unde, propter istas equivocas magnitudines distingwendas, vocatur una pars quo ad successionem vel diuturnitatem: et eius magnitudo vocatur diuturnitas. Et alia vocatur pars quo ad molem; et eius magnitudo propter famositatem vocatur simpliciter magnitudo motus. Magnitudo enim competit methaphorice magnitudini corporee, sicut multitudo convenit numero. Aliter enim dicit habens hoc pro inconvenienti palam sequi quod quelibet pars celi, eciam indivisibilis, esset quantumlibet magna, quia durative equalis suo toti: quod equivocans sine inconvenienti concederet. Patet eciam quod motus uniformis est quantumlibet difformis, et e converso. Nam motus celi est uniformis, quo ad tempus, et difformis quo ad subiectum, et motus gravis est difformis quo ad tempus et uniformis quo ad subiectum.

Magnitude, if not restricted to quantity, might be inconveniently applied to time. Thus a movement may be uniform and varied from different points of view — as the movement of the sky and a falling stone.

Another division of varied movements: *a) uniformly*

Sed motuum difformium est ulterior divisio. Nam aliquis est uniformiter difformis, et alius difformiter

6. coluri B. 17. 9[a] B. 29. z *pro* est B.

difformis. Et hoc dupliciter: vel quo ad subiectum, vel ad tempus. Dicitur autem motus uniformiter difformis quo ad subiectum, quando cuiuslibet partis sue quantitative quo ad molem gradus intensissimus tante excedit gradum eius medium, quante alicuius talis partis equalis gradus intensissimus excedit gradum eius medium. Et talis motus simpliciter uniformiter difformes non moventur nisi lineariter. Nam mota spera, centro eius quiescente, quelibet eius semidyameter sic moveretur: sed de qualibet linea secante dyametros difformiter mota foret falsum quod uniformiter difformiter moveretur. Et cum motus corporum secuntur in velocitate motus suarum linearum et superficierum, patet quod partes quantitative talium sperarum obliquate valde diversificantur in difformitatibus suorum motuum. Est ergo corpus dare uniformiter difformiter motum $2^{m}$ quid, quando cuiuslibet sue partis quantitative gradus intensissimus tantum excedit gradum eius medium quante alicuius sue partis equalis et simillime in figura et posicione gradus intensissimus excedit gradum eius medium: cuiusmodi sunt corpora quorum partes lineares uniformiter difformiter moventur. Sed uniformiter difformis motus quo ad tempus est cuius cuiuslibet partis quantitative quo ad successionem gradus eius intensissimus tante excederet gradum eius medium, quante alicuius talis partis equalis gradus intensissimus excedit gradum eius medium. Est autem motus difformiter difformis quo ad subiectum vel tempus motus difformis cuius difformitas est difformis. Potest autem dici quod motus difformiter difformis, tam quo ad subiectum quam quo ad tempus, est dupliciter; vel sic quod quelibet eius pars quantitativa continue magna sit dif-
B 109[b] formis, vel sic quod quotlibet eius partes sint | difformes; et hoc contingit infinitis modis variari. Et sicut ex parte motus quo ad molem, et parte motus quo ad tempus potest fieri pars motus ex utrisque composita, ita ex motu difformi quo ad tempus et motu difformi quo ad subiectum et quo ad tempus; et ita mixtim in aliis divisionibus.

Sed ista dicta consecuntur tria dubia hic breviter pertractanda. Primum, Si possibile est motum vel tale

and b) *variably* varied. This too is either as regards (1) the subject or (2) the time.

*a)* (1) It is uniformly varied in the subject;

either *absolutely*, as the diameter of a uniformly revolving sphere;

or partially, as bodies of which certain lines move thus.

(2) Uniformly varied in time, when the highest exceeds the mean velocity as much in one quantitative part as in any other.

*b)* (1) *Variably varied* in the subject; (2) in time.

Here there can be infinite modes of variation; and new species of movement can be found indefinitely.

Three questions:

19. filme B.

successivum esse. $2^{m}$: Si continuum componitur ex non quantis, et $3^{m}$: Penes quid ab effectu possunt regulariter attendi velocitates motuum. Primum tangetur proximo capitulo, supponendo talia successiva esse et ampliando verba de presenti, quantum oportet, loquendo de successivis.

1. will be dealt with in the next chapter.

*Question* II: *Whether continuous quantity is made up of points.*

Pro $2^{o}$ argumentatur de punctis que requiruntur ad *esse* linee, tanquam priores naturaliter toto genere linee. Ergo sunt cause linee, et non extrinsece; ergo intrinsece et per consequens partes. Aliter enim omnes partes illius continui forent divisibiles; et tamen non haberent partes nec partem, ut prius deductum est. Et sic concludendum esset quod iste partes componunt et causant se ipsas, et sunt priores et posteriores $2^{m}$ infinitos gradus quam ipsemet sunt. Nec valet dicere quod non omnia sunt danda, ut alibi dictum est; nec est maior racio quare instans est principium temporis ipso prius, et requisitum ad suum *esse*, sicut et unitas se habet ad numerum, quin per idem punctus sic se habet ad lineam.

1. Points are naturally prior to lines; so they cause them, and intrinsically; so they are parts of the lines.

As the instant is the principle of time and unity of number, so is the point the principle of the line.

Similiter: aliter contingeret auferri punctum a linea continuata cum alia, non plus auferendo; et per idem quemlibet punctum linee contingit auferri, et sic omnes, cum hoc quod maneat eadem linea; et sic quilibet punctus linee per accidens continuat unam eius partem cum alia. Sed cum punctus sit accidens, oportet [ut] aliquod eius subiectum adequatum per se subiectat tales denominaciones quales punctus accidentaliter recipit; ut *moveri*, *quiescere* etc. Substancia ergo per se subiectans punctum continuantem partes linee per se principiat illam lineam; et cum illa non possunt esse sine tali puncto, patet quod nullus punctus potest auferri a linea, eadem manente; quia sic contingeret corrumpere omnem punctum corporeitatis dande, servando illam. Continuatis ergo duabus pyramidibus, erunt puncta conalia immediata.

2. If not, all the points in a line could be successively taken from it, without shortening its length. Thus every point would be an accident as regards the substance in which it exists. But this is impossible.

Similiter de inmediacione ubicacionum vel situum indivisibilium, patet quod est dare tales inmediatas. Nam est dare duo puncta inmediata, ut patet de corporibus tangentibus se $2^{m}$ puncta. Sicut ergo talia puncta sunt inmediata, sic ubicaciones vel situaciones

3. There must be indivisible points *immediate*, i. e. having no space between them; for if two bodies

26. ut *deest* B.

eorum sunt inmediate. Et, cum illi situs manent expunctantes alia puncta, patet quod quandocunque alter eorum erit occupatus aliquo punctali intra corpus, reliquus erit occupatus punctali sibi inmediato; et per idem sequitur quod corpus pyramidis tangens medium punctum B superficiei plane eque distantis superficiei orizontes, est superior quam B, cum tota pyramis per totum sit supra B; et per idem, iacente illa pyramide super B planum, contingit ponere punctum conalem alterius pyramidis super primam pyramidem, et sic in infinitum; ita quod ad omnem punctum linee erecte
B 110ª super medium punctum B | sit conus unius pyramidis.

touch each other in one point only, we have two distinct points that touch each other. If the top of a pyramid is placed on the point B of a surface, its top will be above B; the top of another pyramid may be placed above its top, and so on, till a line is formed.

Similiter de instantibus; videtur quod erunt inmediata, quia est dare duo, quorum unum durabit usque ad B instans exclusive, et aliud durabit usque ad illud instans inclusive, et non ultra. Et certum est quod est dare quandiu utrumque durabit; quia aliter non esset dare quam senex aliquis erit, aut quam diuturnum erit aliquod successivum. Et sic, demtis aliis superius tactis, certum est quod unum durabit diucius vel ultra reliquum per unum instans; quia aliter non essem senior quam ante fui, cum ante fui ita senex precise sicut homo qui incepit esse pro primo instanti mei, et nunc desinit esse. Et idem sequitur, si continue intendam motum meum vel actum merendi, et stem sub gradu actus quem nunc habeo, et uno alio merente exclusive usque ad hoc instans, et nunc decedente. Deus enim scit tales premiare proporcionaliter ad intensissimos gradus suorum meritorum; quia aliter noceret homini quod continuasset actum bonum, cum plus premiaretur merendo solum 2ª medietate sui actus meritorii. Deus ergo premiabit quemcunque 2ᵐ intensissimum gradum sui meriti, si non ponat obicem.

4. There must be immediate *instants;* for if two beings last, one till the instant B exclusively, and the other inclusively, the latter will last longer.

The same consequence flows from the idea of merit exclusively or inclusively up to a given instant; God can remunerate one instant of merit.

Et conformiter videtur quod contingit unum dare ultra B instans per indivisibile, ut talem veritatem: A *tangit aliquem punctum* C, posito quod C sit nomen commune ad primam medietatem dati possibilis, et ad quamlibet partem imparem 2ᵉ medietatis divise contra medium punctum; et quod A in B instanti primo

5. Let us suppose the truth: *A touches some point of C,* C signifying the first half of a line and all the odd divisions of the second half;

1—2. exp$^{c}$t͡ates B. 5. t͡aⁿˢ B. 20. demᵗᵖ B. 21. et certum B.
26. zft͡e *pro* et stem B.

and that A gets to the end of the first half in the instant B: then the proposition will be true immediately before B, at B, and immediately after.

deveniat ad medium punctum, continuando uniformiter motum suum super omnes partes proporcionales 2$^{c}$ medietatis: tunc patet quod *A tangere C* manebit usque ad B instans, et inmediate post B instans erit: ergo duracio sua erit inmediata B instanti, ante et post; et per idem potest Deus proporcionare infinita taliter se extendencia per descripciones situum punctualium inmediatorum vel quomodolibet aliter.

There are also indivisible movements; and, therefore, also indivisible instants to measure them by.

When we divide two contiguous surfaces, v. g. air and water, there must be two distinct divisions, therefore an indivisible movement from one surface to another. And the division of each must take place at separate instants.

Similiter est dare motus indivisibiles quo ad duracionem inmediate succedentes; ergo et mensuras instantaneas, ipsos mensurantes. Antecedens patet de divisionibus superficierum inmediatarum in corporibus contiguis dividendis continue; ut, posito quod A dividens primo, dividat superficiem B aeris, et post superficiem inmediatam C aque: patet quod dividentur distinctis divisionibus, pari evidencia qua aliqua superficies dividetur appropriata divisione. Et constat, cum divisio ponit dividi aliquid de presenti, quod est dare instancia inmediata in quibus erit ita quod hoc dividens dividit istam superficiem. Aliter enim dividens divideret quotlibet superficies quas nunquam tangeret, ut infimam superficiam B pro illo instanti in quo tanget C. Et nunquam tangeret illam, nisi forte in instanti inmediate precedente; sicut tota divisio B terminabitur inclusive ad illud instans in quo infima eius superficies dividetur, cum continue usque ad illud instans manebit, et non in illo vel post illud, propter nisum agentis. Et idem sequitur de luminibus et quantitatibus qui innovabuntur subito pro quolibet instanti istius hore 2$^{m}$ se tota, de pyramide circumrotata super multitudine punctorum per se servatorum sine linea; ut posito quod Deus annichilet Sortem, et post vivificet illum, et 3$^{o}$ adnichilet, et sic sine fine, patet quod, subductis omnibus motibus preter tales, foret tempus; quia prius et posterius successivum; et cum tempus se habet ad divisibilitatem sicut motus et eius materia, patet quod illud tempus componetur ex instantibus.

This argument holds in many other cases, v. g. in the hypothesis that were God successively to annihilate and re-create the same individual eternally, the succession of mediate creations and annihilations would be time.

Note that theologians admit the possibility of this hypothesis, and are yet so inconsistent as to deny that.

Et hic miror quare theologi admittunt casum ultimum, et tamen dicunt quod Deus non potest auferre punctum a linea | nisi addiderit alium, nec continuare duas B 110 lineas ad invicem, nisi corrumpendo puncta extremalia

11. an͡dȝ B. 15. dφ$^{tr}$ B. 28. lm͡ib9 B. 38. ca$^{m}$ulti$^{m}$ B.

et generando terminum communem, cum summe libere contradictorie agit ad extra; et quilibet punctus potest per se esse dependens ab alio.

He could take one point from a line without adding another.

Similiter, ex modo loquendi de difformitate motuum quo ad tempus, patet idem. Nam motus uniformiter difformis, in quantum talis, terminatur ad gradum inclusive; quia aliter non esset dare gradum eis intensissimus vel medium, et per consequens non esset descriptibilis aliqua descripcione; quia dicere quod gradus ad quem terminatur exclusive, qui non est in mobili, mensurat eius velocitatem vel uniformitatem, est plana contradiccio, cum medium requirat extrema illius cuius est medium. Et dicere quod gradus medius, qui non est extremum vel terminus illius motus, est plane demencie.

6. Again; every uniformly varied motion must include the degree of intensity at which it arrives.

Gradus ergo medius motus uniformiter difformis quo ad tempus, erit gradus utriusque medietatis successive; quia aliter non continuaret unam medietatem latitudinis cum alia. Continua enim sunt talia quorum ultima sunt unum: ut agregatum ex $2^{bus}$ terminis continuatorum est unum commune utrique continuatorum $2^{m}$ partes eius. Nichil enim continuat primo aliud cum alio, nisi fuerit illius quod continuat; ut punctus non est terminus communis lineis ipso continuatis, nisi sit punctus utriusque illorum. Et ita, generaliter loquendo de continuacione, terminacione et velocitate successivorum incidit homo, velit, nolit, in istam sentenciam.

Thus, when it arrives at half its intensity, there must be the same degree of intensity for the end of the first and the beginning of the second half. Otherwise the movement would not be continued.

Sic enim ponunt auctores quod habitantes sub polis zodiaci habent duos dies in anno, in quorum uno habent instans pro nocte, et in altero instans pro die, emergentibus illis subito ex signis. Et illud plane patet ex hoc quod sol, describendo tropicum estiwum, solum per instans tanget zodiacum fixum illo die; et cum zodiacus fixus sit orizon habitantibus sub circulo artico, sequitur quod solum per instans deficit sol in illa die ab existencia supraorizontaliter habitancium; et ita per idem instans vel agregatum ex paucis instantibus, erit illis nox. Supponatur enim [definicio] *quid nominis* terminorum, modo quo auctores locuntur.

Illustration of this by the fact that at the poles there is once a year a night, and once a day, of but one instant in duration.

Similiter, ut credo, nullus theologus negaret quin Deus de potencia absoluta potest facere substanciam

7. God can, absolutely speaking make a substance of the size of a point;

29. $30^{ci}$ B. 32. t°pic͡u B. 38. definicio *deest* B.

punctalem, vel condensando, vel noviter causando, vel 3° faciendo spiritum esse in situ punctali et annichilando omnem aliam creaturam preter talem spiritum servatum immotum; et tunc patet quod punctualitas vel punctus, que est substancia huiusmodi *esse* punctalis, est actus positivus [in] illa substancia, sive sit separabile sive inseparabile. Punctus ergo potest esse. Nec dubium quin, si Deus potest unum punctale producere, potest et quodlibet iuxtaponere. Nec dubium quin situs essent correspondenter iuxtapositi, cum situs sit subiectum situari. Et ultra patet quod Deus potest ex talibus non quantis facere unum quantum: quod sic ostenditur argumento ad hominem. Creet Deus ad omnem situm punctalem mundi unam substanciam punctalem, et annichilet post omnem substanciam continuam, servando punctales substancias inmotas; et patet quod Deus est adhuc per tantum locum sicut fuit in principio, et per consequens est tantus locus; vel saltem contingit tantum locum fieri ex illis punctalibus, sicut prius. Aliter enim non esset distancia, nec punctuale fluens super alia punctualia posset moveri localiter; ut iste globus successive circumductus, causaret duracionem successivam. Posito ergo quocunque tali accidente continuo, oportet ponere subiectum eius continuum, et illud esset compositum ex punctalibus, quia illa forent eius principia intrinseca. | Nec dubito quin, admisso hoc pro possibili, omnes philosophi mundi non haberent infallibilem evidenciam ad concludendum quod non est sic de facto. B 111a

and He can also place several of such points so as to touch each other.

And thus out of several inextended substances, an extended substance might be made. Suppose that God created such substances in every point of space, and then annihilated all continued substance. space would remain as it was, and the things in space also;

And if this is possible, I defy any one to prove that it is not so at present: the arguments against it would have to be refuted then as we refute them now, and are of no more value now than they would be then.

Nam, conformiter sicut tunc respondendum esset ad argumenta in oppositum, respondendum est et nunc. Nec adhuc argumentum plus concludit nunc quam tunc concluderet, nec experiencia, vel auctoritas, vel quivis alius locus efficacius probat nunc quod non sic est, quam tunc probaret. Et negans puncta vel talia indivisibilia esse, nec vere loquitur de instanti temporis nec de motibus subitis, et generaliter de continuacionibus accidencium. Nec arguet efficaciter contra ponentes composicionem continui ex non quantis, nisi prius stabiliret nullum huiusmodi posse esse: quod faciendo nimis diu exceptaret principale intentum.

Argumentando eciam pro isto puncto, multum expedit habere concessum quod omnia preterita vel futura sunt

The truth that past and future are present to God,

6. in *deest* B. 12. or B.

Deo presencia: tunc enim sequitur omne quod erit aliqualiter, ipsum est taliter; et per idem, si aliquid dividet superficiem, vel erit summe propinquum ipsum, sic se habet: et hoc multum valet pro intento.

is of great use in this matter.

In oppositum est philosophus 6° phisicorum, 3° de celo, et primo de generacione, per multas pregnantes raciones et consideraciones difficiles contra Democritum et Platonem: ut puta de tactu, de mediacione cuiuscunque continui, de divisione cuiuscunque continui in infinitum, de continuacione indivisibilis cum alio, et multis similibus que postea tangentur.

*First Objection:* Aristotle, in many places, seems to contradict this.

Sed ad illud respondet Linconiensis, dicens quod Aristoteles intellexit nullum continuum distincte sensibile componi ex non quantis tanquam partes eius numeralibus. Et vocantur partes numerales partes quantitative, que aliquociens finite quo ad hominem sumpte constituunt suum totum, vel maius; et tamen impossibile est non quantum esse partem vel componere continuum sic sensibile. Verumptamen apud Deum est notum ex quot non quantis mundus componitur, et quecunque pars eius corporea; sicut notum est sibi quota pars quantitativa anguli recti est angulus contingencie quam Euclides, 3° elementorum 25°, demonstrat esse minimam speciem angulorum, et partem anguli rectilinei. Et sic dicit Aristoteles, primo posteriorum, punctam esse causam linee, cum ponitur in eius diffinicione tanquam prius naturaliter. Ideo dicit Linconiensis quod ista opinio non contrariatur sensui Aristotelis, sed sequitur ex eodem. Nec est possibile punctuale tangere vel continuari cum aliquo $2^{m}$ intellectum quem Aristoteles exponit de termino; quia supponit omne tale habere ultimum.

But Grosseteste points out that Aristotle has in mind that which is *sensibly* continuous: and that, of course, cannot be composed of inextended parts, such that we can distinguish or count them. But God can; as He knows what part of a right angle is the smallest of all, called the angle of continence. Aristotle admits that the point causes the line. Our view not only is not opposed to his doctrine, but follows from it.

Verumtamen unum indivisibile potest tangere reliquum, large loquendo; quia esse ad eundem situm indivisibilem positum cum alio; et sic potest continuari cum alio large loquendo, quia facere unum continuum cum alio. Et compositum ex $3^{bus}$ punctis, vel quotlibet

One point can, in a wide sense touch another, i. e. be in the same place with it. A collection of points in odd number can have halves;

24. miam B. 30. ītvm B. 31. det'uno B. 34. oe B.

22—23. *Angulus contingencie.* We find further on (p. 48), that the angle of continence is the one formed by a circle tangent to a right line.

for in one sense, halves must not necessarily be equal, though in another they must.

imparibus, habet medietates; quia sicut medium dupliciter dicitur, vel per abnegacionem extremorum, vel per eque distanciam ab extremis, sic est dare duplicem medietatem: scilicet, medietatem, que est pars simpliciter subdupla ad indivisibiliter plus vel minus suo tota (et taliter loquitur arithmeticus de medietate maiori et medietate minori numeri imparis). Et 2° modo, sed non primo, habet omnis quantitas medietates, i. e. duas partes quantitativas incommunicantes, quarum neutra indivisibiliter excedit reliquam totum equaliter constituentes, licet ternarius et omnis quantitas habeat duas medietates equales ad alium sensum.

Aristotle proves nothing contrary to this. Neither geometricians nor natural philosophers have anything to do here, for they consider things as belonging to experience and sense. Now the point is not sensible, nor even imaginable; it belongs to the province of metaphysics.

Nec demonstrat Aristoteles oppositum, sicut nec demonstrat, si aliquod sit instans, ipsum est principium unius temporis | et finis alterius; cum primum instans B 111b non precessit instans vel tempus, sed capit alias significaciones ex famosis modis loquendi philosophorum naturalium, quorum non interest tractare de partibus punctualibus in philosophia naturali, in qua demonstratur causa per effectus, demonstracione *quia est*, cuius principium est experiencia vel sensus. Punctus autem non est sensibilis vel ymaginabilis; ideo tractatus eius non pertinerit specialiter geometre, qui solum de ymaginabilibus pertractat directe, sicut nec naturali philosopho. Sed illud conservandum est metaphysico et aristotelico.

No number of substances or points can be infinite; God alone is so. God knows how many points go to make up a square or any other figure that can be perceived by the senses.

Unde impossibile est quod aliquis numerus substanciarum vel punctorum, vel aliud preter deum sit simpliciter infinitum, cum omnis talis numerus habet deum finem suum extrinsecus finientem et ultimum eius punctuale finiens intrinsecus. Ymmo deus satis noscit quomodo omne quadratum per se sensibile integratur ex partibus minimis et principiis eorum indivisibilibus cumulatis. Et sic dicitur de qualibet alia figura principiata ab indivisibilibus primi numeri, ut figurati. Novit eciam in qua proporcione quicunque numerus punctorum se habet ad alium; et de istis habemus nos inseparabilem ignoranciam. Scimus tamen quod, si una linea fuerit $2^{pla}$ ad aliam, tunc numerus punctorum eius est duplex ad numerum punctorum alterius: et sic de similibus. Verumptamen non possumus scire nisi

If one line, v. g. is twice as long as another, it contains twice as many points; but we cannot know exactly

2. abne$^{om}$ B. 7. isto *pro* 2° B. 23—24. ymag$^{bo}$ B. 26. aris$^{co}$ B. 32. 4$^{\overline{or}}$ B. 33—34. expt$^{\overline{e}}$ B.

sciencia confusa et communiter dicta aliquod tale antecedens; ut nemo mundi scit distincte quantum est hoc corpus, quodcunque demonstretur; quam velox est iste motus; quod hoc est medium instans, vel principium huius diei. Et sic de aliis singulis que supponimus taliter se habere, quando contingit nos loqui de talibus illis. Ideo dixerunt philosophi quod de singularibus, propter suam infinitatem, non est sciencia. Omnem ergo numerum qui excedit ingenium nostrum ad aptandum sibi terminum specificum naturalem vocamus infinitum, sicut profunditas maris dicitur in una significacione esse infinita; et talia que sunt hominibus inmensurabilia et illa voco infinita $2^m$ quid, vel quo ad hominem, et ita intelligo quandocunque pono numerum infinitum.

that it *is* twice as long, nor indeed anything relative to size, movement, &c.

'Infinite' is a term we use for denoting a number inconceivably great; it is in this sense of relative infinitude that I employ it when speaking of number.

Unde, ymaginato quod Deus successive addat ad A punctum alia puncta, continuando unam lineam, est dare instans quando numerus punctorum erit $2^m$ quid infinitus uni, et quando erit $2^m$ quid infinitus alteri; et sic diversi ($2^m$ perspicacitatem suam) habebunt diversos maximos numeros illis finitos, et diversos numeros minimos illis infinitos. Nec est inconveniens unitatem additam vel subtractam a numero facere quod quis non sufficiat distincte totum apprehendere confuse, cum cognoscatur de quocunque tali quod illud esset finitum; et si esset duplicatum, quadruplatum; et sic quamdiu scivero numerare. Est ergo dare maximum numerum quem quis potest distincte simul apprehendere, et nullum numerum sibi infinitum excedentem solum per unitatem quem non sufficit distincte apprehendere. Omne enim distincte sensibile continet ultra hoc quod scio distincte calculare indivisibilia $2^m$ quid infinita. Unde maxima multitudo evorum est numerus maximus possibilis, sed finitus, et per consequens multitudo instancium, terminorum, vel parcium talium quaremlibet est finita; licet tempus sit infinitum a parte post, quo ad finem intrinsecum, sed non quo ad finem extrinsecum (qui est Deus) omnium novissimum. Et sic dicitur de proporcionibus quod repugnat aliquam esse simpliciter infinitam. Tempus ergo est sic infinitum a parte post; sed non concipio quod aliquid possit esse sic infinitum

Suppose that God adds one point to another so as to make a line, there will come a time when the number is infinite to one man, and then to another, according to his power of conceiving it; and the addition of a single unit makes the difference between infinite and finite, in this sense.

The greatest possible number of ages is a finite number; though time is infinite in the future, it is not so to God, nor is it at all infinite in the past.

33. enoũ B. 36. app$^{o}$ B.

I cannot conceive of a straight line infinitely long, forming a circumference or having an end anywhere, We thus admit that the extended is infinitely divisible *relatively to us;* no other infinitude of division can be proved.

a parte prius, nec quod aliquod tempus posset anteriorari; nec quod linea simpliciter infinita $2^{m}$ unum extremum | possit circumduci vel figi aliter termino B 112a fixo propius per eius talem amocionem, ut communiter ymaginamur homines. Unde satis est pro sensu philosophi quod omne continuum sit $2^{m}$ quid divisibile in infinitum et ultra omnem numerum finitum a viatore distincte noscibilem. Unde volens argumentare infinitatem simpliciter per communes exponentes, nunquam probabit illum saltum monstruosum: et sic in infinitum. Sed do ultimum cuiuscunque corporis, superficiei, linee, vel finiti termino intrinseco. Et patet solucio ad primam racionem factam.

*Second Objection.* All 'infinites', according to this theory, contain the same number of points. For if two mobiles pass over spaces respectively equal to 1 and 10 2 feet in 1 hour (or the same number of instants) they pass over the same number of points. Or if the two lines A and B are the circumferences of concentrical circles, then there are as many points in B as there are radii of its circle; and just as many in A; for the radii are the same from the centre. *Answer.* It is not true that either of the mobiles passes over one point in one instant.

$2^{o}$ principaliter argumentatur quod nullum infinitum sit reliquo maius; quia sit A linea pedalis, cuius puncta sint subdupla in multitudine ad lineam [B] bipedalem; et pono quod C [et] D, uniformiter movendo, describant istas lineas adequate in hora: et tunc videtur quod tot precise puncta tangeret C in ista hora sicut D, quia utrinque precise tot quot instancia erunt in ista hora; eo quod pro quolibet instanti tanget solum unum novum punctum. Cum ergo quecunque sint equalia alicui tercio sunt equalia inter se, videtur quod uterque maximus numerus punctorum sit equalis alteri, sicut est equalis maximo numero instancium huius hore. Et idem deducitur, ponendo A et B circulari concentrice; tunc precise tot puncta sunt in B quot sunt semidyametri ab illo ad centrum; et tot sunt puncta in A: quia quelibet talis dyameter tangeret in A disparem punctum, sicut tangit in B, cum omnes tales primo concurent in centro, eo quod aliter non esset recte. Et idem deducitur de infinitis punctis existentibus in eodem situ indivisibili applicatis infinitis pyramidalibus $2^{m}$ conos ad eundem punctum in aere. Et ad id fiunt multa argumenta mathematicalia et geometricalia, reducendo opposita conclusione $10^{me}$ et cuiuslibet conclusionis Euclidis.

Et hic dicitur quod claudit contradiccionem C et D pro quolibet instanti huius hore tangere novum punctum, sic tarde movendo. Pro quo notandum quod,

1. appō B. 16. B *deest* B. 17. et *deest* B. 35. reduᵈᵒ B. 36. 9ᵘᵉ B.

dato puncto velocissime moto qui, gracia exempli, sit punctus equinoxialis; ille pro quolibet instanti temporis adquirit et deperdit situm punctalem et nullus alius tardius motus; sed aliquis exceptat per duo instancia, aliquis per $4^{or}$ instancia, et sic proporcionaliter $2^{m}$ quod tardius movetur illo. Nam motus celi est minimus possibilis quo ad multum de situ describendum in parvo tempore, eo quod est velocissimus possibilis; et ille est mensura omnium aliorum motuum; non solum regulariter dictus mensurare tempus et aliorum motuum quantitates, sed efficiens omnes alios motus proprios, cum, cessante illo motu, cessarent alteraciones et motus locales quicunque mobilium non intellectivorum. Patet ergo quod quilibet punctus recte motus vel circulariter per horam tardius quam punctus velocissime motus, tanto pauciores situs adequate describet, quanto tardius movebitur.

Alone the equinoctial point in the sky passes over one point in each instant; all others pass over less, according as they move slower, for the movement of the sky is the most rapid possible and not only is taken to measure, but really does measure all others.

Et ex istis potest patere, cum nichil potest velocius moveri motu successivo quam movetur equinoccialis, et cum Deus non potest creare maiorem mundum quam potest circumducere, sequitur quod non maior mundus potest esse, nisi forte posset moveri successive motu subito, stante continuitate parcium: vel forte Deus posset spissius ponere punctalia in mundo, stante eius circumferencia in eodem situ, ita quod poli possent quantumlibet plus distare sine eorum motu. Conclusio principalis de posicione mundi in magnitudine, situ, figura, et terminis inseparatis consequentibus est multis eligibilior, quam alie recitate.

Note that this agrees with the truth that the world cannot be greater than it is; for God cannot create a world too great to be revolved thus, unless under certain hypotheses which are very unlikely.

Patet ergo ex dictis quod argumentum $2^{m}$ peccat
B 112b in materia, capiens quod omne punctum | localiter motum pro quolibet instanti adquirit situm punctalem: quod non est verum, cum sicut intercisiones talium adquisicionum proporcionaliter ad tarditates motuum. Sed argumentatur contra illud per hoc quod tales motus non essent continui, cum, pari evidencia vel maiori, mobile per horam quiesceret quiete illis opposita; experiuntur tamen tales motus esse contra nos.

Thus in this argument the assumption is wrong. It may be urged that if so, we may just as well call movement during an hour, rest during that time, yet we see the contrary.

10. doctus B. 26—27. Con° pu'lis B. 28. 9ntib9 B.

2. *Punctus Equinoxialis.* Doubtless the point where the equator is crossed by the ecliptic, and which is supposed to turn round on the equatorial circle once a day.

We answer that continuity of movement is apparent, not real, as all continuity is.

Hic dicitur quod loquendum est de continuacione motuum quo ad tempus vel quo ad subiectum, sicut dicendum est de continuitate formarum substancialium et simplicium in mixtis, et de densitate ac raritate corporum. Pro quo declarando, notandum 2$^{m}$ sentenciam perspectivorum et communem experienciam, quod maxima decepcio contingit in sensibus, in significando continuitatem motus. Cuius racio est, quia tam ad situs quam ad motus significacionem requiritur tempus conveniens; et ideo parvitas temporis facit quotlibet illusiones; ut

The senses often mislead us in this matter.

When the time taken up by a phenomenon is very short, there are many illusions.

A burning brand, swung round, seems a circle of fire; a red point on a white top forms a circle too, when it revolves.

Reason, not sense, must be judge in such matters.

ticio circumductus in noctibus videtur causare ignitum circulum, sicut et punctus sensibilis rubricatus in base alba troci celeriter circumducti; ut exemplat Avicenna 6° naturalium, et Boccius in principio musice sue, et experiencia communis de ioculantibus docet idem. Et patet quod non est credendum sensui generaliter in talibus, sed pocius racioni, errorem sensus corrigenti. Unde de singularibus sensibus habemus exilem scienciam, quam aliqui vocant scienciam communiter dictam scienciam putativam, probabilem, thopicam, sive fidem.

We do not note the minute motions and rests distinctly, but there is a confused feeling that produces the idea of continuous motion.

This motion is thus an aggregate of many movements and many rests.

Ex ista proporcione ergo temporis convenientis, ex uno latere latet sensum talis parvus motus velox, et ex alio latere manet in sensu communi et ymaginativa species et iudicia servata de coloribus et sitibus, dum motus fuerint celeriter repetiti; et hinc fit talis illusio.

2° supponatur ex supra dictis quod sicut motus agregatus vocatur motus inter cuius partes intercidunt multe quietes vel multa substancialiter illi impertinencia, proporcionaliter dicendum est quo ad intercisionem instancium de quandalitate vel tempore agregato. Sic enim oportet philosophum loqui, ampliando verba de presenti, quando loquitur de huiusmodi agregatis; ut patet de stirpe vel genere, de religione vel ordine, de populo vel quacunque alia multitudine.

Continuity of motion may apply either to movement without any intermingled rest, or to movement of which the primary measure is continuous.

His premissis dicitur 3° quod dupliciter dicitur motus continuus; vel simpliciter ut solum motus, vel velocissimus, inter cuius partes non est aliqua invasio quietis opposite; vel motus continuus quo ad eius primam mensuram, licet intercidant multe quietes opposite. Et istum voco motum continuum 2$^{m}$ quid. Et taliter oportet quemcunque philosophantem ponere

15. deiocula$^{bo}$ B. 36. sol B.

omnem progressionem, omnem tremorem cum suis consequentibus esse continua, ut sunt soni cordarum, et generaliter omnes soni vel loquele; cum quotlibet similibus, in quibus sunt quotlibet intercisiones, racione motuum reflexorum, licet sensus decepti putant talia simpliciter esse continua.

To the second sort belong progression, and undulatory movement, such as sound, which appears to be unbroken to our senses.

Istis notatis, dicitur quod quilibet motus successivus est modo suo continuus. Unde datus motus est continue per suam primam mensuram, hoc est, aggregatum ex instantibus vel quandalitatibus indivisibilibus, in quorum quolibet movetur mobile talis motus; quia pro nullo signo illius mensure desistit. Et proporcionaliter dicendum est de quiete opposita habente mensuram incommunicantem sed commixtam. Et patet solucio. Sic enim est motus augmentacionis continuus, licet multe quietes intercidant (ut vere dicit Commentator); et ita continuat, quantumlibet tarde motum, suam mocionem respectu sue prime mensure. Nec est inconveniens, sed consonum racioni, vocare agregatum ex indivisibilibus aut divisibilibus distantibus substanciam, quantitatem | qualitatem, etc. ut alibi patet diffusius. B 113a

All successive motion is continuous, for it exists during a continuous aggregate of instants.

Development is a continuous motion, though it may often be arrested, because it fulfils itself continuously in a certain space of time.

There is nothing absurd in calling indivisible points a substance or a quality.

Ulterius, quo ad $2^{m}$ de A et B circulatis concentrice, dicitur quod talis est proporcio numeri punctorum ad numerum punctorum, qualis proporcio circuli ad circulum; et ita generaliter de quibuscunque continuis et multitudinibus ipsa continentibus. Ideo ponunt sapientes concorditer quod prima racio mensurandi est in numeris; et patet quod quotlibet semidyametri et circuli concurrent, antequam deveniatur ad centrum, servando rectitudinem.

In the case of two concentric circles, of which one circumference is double of the other, the former will have double as many points.

Ideo est assumptum argumenti falsum. Quis namque negaret quin, ponendo puncta A circuli esse inmediata, semidyametri iniciate a punctis inmediatis statim concurrerent antequam procedatur distancia sensibili versus centrum? Unde opiniabile est quod circumferencia mundi est maxime regulariter de possibili circularis; et cum ipsa habet graduum remissimum arcualem, opinabile est quod supremus circulus excedit circulum proximo suppositum solo puncto. In circulis autem magis curvis, propter irregularitatem ultimo linea circularis excedit sibi proximam multis punctis; et hec est $2^{a}$ consideracio quare non potest esse mundus maior, quia quantus mundus potest esse, tantus potest esse mundus circularis; sed non potest esse maior mundus circularis, cum

The circumference of the world is probably a perfect circle, with the least possible curbature, and exceeds the nearest possible inscribed circle by one point only; but the others, being more curved, differ by many points.

This again proves that the world cannot be larger than it is; for no circumference less curved is possible, and the world must be a sphere.

remississimus gradus circulacionis possibilis sit sue circumferencie ultime conveniens: ergo, etc. Cum enim in qualibet latitudine sit dare gradus immediatos et gradum remissimum $2^{m}$ illam viam, patet quod sic est ponendum in latitudine curvacionis. Possibile est ergo deum creare mundum $2^{m}$ quamlibet partem sue circumferencie remississime circularem; et cum nemo scit probare quod non sit ita de nostro mundo, patet sequi ex illo supposito et opinione de compositione continui ex non quantis ac aliis necessariis, quod non potest mundus alius esse maior. Nec plus derogat hoc infinitati divine potencie, quam quod non potest producere alium filium, adnichilare suam fabricam, vel producere mundum in specie milius figuratum. Sicut ergo esse mundum infinitum simpliciter propter nimietatem magnitudinis non esset validum nec esse mundum equalem pise propter nimietatem parvitatis eciam non valet; sic videtur quod inter hec extrema intelligibilia est dare optimum gradum medie quantitatis; quoniam verisimile est Deum scire et velle in tam principali fabrica contigisse. Ex istis patet quod non potest esse linea recta longior quam mundi dyametrum et per consequens non quelibet linea est rectificabilis.

This takes nothing from God's power; an infinite world and a world no larger than a pea, are both equally impossible. No straight line can be longer than the diameter of the world; so there are lines which cannot possibly be straightened.

Ad $3^{m}$ dicitur quod impossibile est multa puncta vel substancias punctales esse simul in eodem situ indivisibili; quia per idem possent multa prima subiecta situs huius esse in eodem situ individuo: quod repugnat formaliter cum hoc posito de A et B subiectis. Patet quod aliud est A situari et aliud B situari; et per consequens situs vel situaciones sue distinguuntur. Et idem sequitur de *ubi* indivisibili, cum sit actus qui multiplicatur ad multiplicacionem subiecti sui primi. Et confirmacio huius est, quod tanta foret racio repugnancie quod puncta forent simul quo ad suos situs, sicut quod quantitates molares essent simul coextense; sed hoc non potest esse: ergo nec primum. Si enim quilibet punctus A potest esse simul cum puncto B, tunc totum A potest coextendi cum toto B, et per consequens totus mundus potest esse involutus in quamtumlibet parvo situ. Dicitur ergo quod puncta | conalia pyramidis cumulata con- B 113b stituent magnitudinem, ut tactum est superius, cum

It is said that if the apices of many pyramids touched each other, many points would be in the same place. But this is impossible, if we admit that the position of apex A and that of apex B are different. There is just the same impossibility for two points to coëxist, as for two volumes.

These apices constitute magnitude, as has been shown;

1. circularius B.

unum distabit ab alio per quotlibet intercepta. Unde argumenta hominum volencium detrudere quotlibet talia puncta in eodem situ indivisibili petunt pro fundamento quod non sit possibilis composicio continui ex non quantis. Ideo illud $3^{m}$ non est probacio, sed peticio principii.

to suppose the contrary is to beg the question.

Unde alias dixi quod non possunt plura quam sex puncta inmediate circumstare eundem punctum in medio. Et hec est una causa quare septenarius est numerus universitatis. Omnem ergo punctum mundo sensibiliter intrinsecum circumstat inmediate, versus quamlibet 6 differenciarum, unus punctus. Sed argumentatur communiter quod quemlibet punctum intrinsecum circumstant puncta infinita; quia sit A punctus in aere quem solum sex puncta tangunt $2^{m}$ istam viam, tunc patet quod A constituit trigonum superficialem, quadratum, pentagonum; et sic de qualibet specie figure superficialis, quo ad gradum eius minimum. Ex quo sequitur quod A tangit infinita puncta; quia, sicut tangit punctum directe orientalem et punctum directe occidentalem, ita tangit utrumque immediatum suprapositum aut suppositum illis punctis; quia, sit B punctus inmediatus A orientali, et C punctus sibi inmediate suprapositus, et D punctus inmediate supra positus A B in linea eque distante inmediate B C lineam; et patet quod A B C D constituunt unum quadratum minimum, et quod unum quodque istorum $4^{or}$ punctorum sit inmediatum cuilibet eorumdem. Videtur ex hoc quod nullus punctus est fingendus intercidere inter unum et alium. Quod confirmatur ex hoc quod linea aliquante incidens, que habet punctos angulares intrinsecos, cum sit recta et continua, habet utrobique puncta inmediata. Patet ergo quod A, ex una quadrata superficiali, habet $3^{a}$ puncta; scilicet B C D sibi inmediata, et per idem habet versus occidens alia tria puncta; et sic habet sex puncta inferius tangencia; et per idem, multiplicando pentagonos,

Only six points can touch a seventh placed in the middle: thus 7 is the number of totality.

But here is a difficulty; it would seem that every point is touched by an infinite multitude of others.

If a given point A touches another B, which is itself touched on each side by the points C and D, then A must also touch these, and so on *ad infinitum*.

12. drarp B. 14. ac' B. 16. $4^{tum}$ B. 21. utrꝙ B. 26. $4^{tum}$; *and so all along* B. 30 a'qe B.

1. *Unum distabit.* Wyclif seems inconsistent here. He all along says that his indivisible points are 'inmediata'; which I cannot understand to mean anything else, except that they touch each other.

exagonos, etc., haberet ex omni parte puncta circumstancia infinita.

To answer this, note that the world, with each of its parts, has positions corresponding to its diameters of length, breadth and height; and these diameters have their points placed differently from all other lines, somewhat like directions of cleavage in wood or stones;

Pro ista consideracione solvenda, notandum quód mundus, sicut quotlibet eius partes, habent posiciones suas lineares et superficiales, quarum posicionum radix est $3^{x}$ dynamiter mundi; scilicet longitudinalis, latitudinalis et altitudinalis. Iste autem tres dyametri, sicut et quelibet linea ab aliqua istarum eque distans, habet aliam manierem posicionis suorum punctorum, quam alia linea reliqua obliqua. Sicut enim non esset racio scissibilitatis ligni vel lapidis $2^{m}$ poros longitudinales pocius quam transversi, nisi racione disparitatis in continuacione linee naturalis, sic in mundo non esset racio quare una dyameter esset longitudinalis vel latitudinalis, pocius quam quelibet tracta ad quoslibet polos mundi, cum esset racio specialis quam ego pono a michi probabili ex posicione suorum punctorum respectu punctorum alterius linee obliquate; et hinc videtur radios influxos in ista inferiora habere disparem efficaciam $2^{m}$ modum disparem incidendi. Dico ergo quod omnis punctus sensibiliter intrinsecus alicui istorum trium linearum vel sibi eque distancium, tangit duos punctos in eadem linea, et nullam reliquum angularem. Ut in casu posito, si A sit punctus talis linee, tunc illum tangunt solum sex puncta versus $3^{s}$ differencias supra dictas, ita quod nullius quadrati minimi puncta angularia obliquata a posicione predicta tangunt se.

and they influence the position of all points, so that a given point A will be touched by only 6 other points in the direction of the three diameters of the world, and by no others.

It does not follow that any line drawn to a point is bent, unless in this direction; for it will touch that point by means of another that touches it, and belongs to one of the three diameters.

Et si argumentatur quamlibet lineam [non] directe incidentem quo ad posicionem | predictam esse curvam, B 114[a] dicitur quod non sequitur. Pro quo notandum quod quilibet punctus linee primi modi est punctus linee $2^{i}$ modi, et econtra. Unde linea in medio incidens inter duos semidyametros mundi, dividendo angulum rectum in duo equalia, ut loquitur geometer; ut, gracia exempli, C linea incidens inter A semidyametrum orientalem et B semidyametrum meridianum, tangit per centrum

15. te'a B. 18. v'er B. 20. incedendi B. 22. tãnt B. 28. non *deest* B. 32. lr̃a B.

28. It is with some hesitation that I have added *non* here, supposing *directe* to mean 'in the direction of one of the world's diameters'. Any line produced to the point A in another direction would form a curve with its last two points, so to speak.

punctum A linee inmediatum centro. Ex quo sequitur quod ille punctus A linee est medius inter centrum et punctum angularem proximo supradictum punctum in linea inmediata. Et sic ascendo oblique $2^m$ situs indivisibiles inmobiles et sempiternas. Unde, quicunque concedit talem lineam non esse rectam inveniat in mundo alium situm reccius positum vel ponibilem inter extrema. Rectum enim est longitudinaliter positum, cuius nullum medium obliquat ab extremis eiusdem. Et si argumentatur quod non sit racio quare punctus A linee, inmediatus centro, sit extremum C tangens centrum, quin per idem punctus B linee, inmediatus centro, sit extremum C linee per quod tangit centrum: dicitur quod sunt due tales linee, quarum utraque communicat cum reliqua in omnibus preterquam in signatis punctis. Ideo oportet ex supposicione capere C esse lineam illam que per punctum A linee inmediate centro tangit centrum.

No line could be straighter. None of its intermediate points is out of line with its extremities.

If it be said that it might as well touch any other point that touches the centre, this is denied, because they form different lines, differing by one point only.

Ex istis patet quod non sequitur: *A punctus tangit B punctum*, et *B punctus tangit C punctum:* ergo. *A punctus tangit C.* Ymaginacio autem non sufficit ista capere, cum solum capit sensibile cumulari supra sensibile et per consequens inter illa intercidere angulariter unum minus. Ideo oportet superius ascendere ad aciem intellectus in recte concipiendo composicionem continui ex non quantis. Quod grave est facere, ex hoc quod ymaginacio cogit intellectivum in apprehensione cuiuscunque ymaginabilis; et cum in toto ambitu sui obiecti non reperit composicionem huiusmodi parcium, non est mirabile si dissentit. Sed intellectus dicit sibi quod est dare parcium indivisibilium composicionem aliam, quam non est suum discutere.

This is a sophism: The point A touches B, and the point B, C ∴ A touches C.

It is true that we cannot imagine these things; but we must transcend imagination by intellect: a work of some difficulty, because imagination cannot find the inextended anywhere, and consequently dissents.

Sed quia dicta posicio videtur plurimum repugnare conclusionibus geometrie cum suis principiis; ideo expetit parum disgredi, ne posicio dicta videatur contraria tam lucidis veritatibus, ex tam firmis principiis demonstratis. Libenter tamen scirem a modernis arguentibus geometrice contra dictam viam de composicione continui ex non quantis, quid ipsi vocant lineam, superficiem, punctum et angulum; si negent talia mathematicalia posse [esse], quomodo non verentur arguere, pec-

Argument *ad hominem* against Nominalists: do they admit mathematical points, lines, &c.? If not, how can they urge geometrical difficulties against us? And if they do, they admit our position as true.

41. esse *deest* B.

cando in materia, dum sumunt sibi notorie impossibilia? Si autem dicant quod necessarium est esse huiusmodi elementa, ut oportet geometriam supponere, coacti erunt concedere quod talia non possent mathematice sustineri, nisi ponendo sua subiecta indivisibilia, et per consequens componere substancias sensibiles quarum sunt principium.

Different senses: (1) *Of a point:* either the minimum perceptible by our senses, or the absolutely indivisible end of a line. (2) *Of a line:* length either without sensible breadth or thickness, or without any at all. (3) *Of a surface:* length and breadth without sensible thickness, or absolutely without thickness. (4) *Of an angle:* either the relation of two natural lines, meeting in a natural point, or of two mathematical lines meeting in a point of the same sort.

Primo ergo notandum quod unumquodque $4^{or}$ predictorum potest intelligi equivoce. Nam punctus potest significare vel minimum sensibile $2^{m}$ $3^{s}$ demensiones terminatum intrinsecus quantitatis continue permanentis, vel terminativum linee intrinsece simpliciter sine parte. Et sic linea potest significare vel quantitatem continuam, permanentem, sensibiliter longam, sine sensibili latitudine vel profunditate eiusdem, vel $2^{o}$ quantitatem permanentem sine | latitudinali profunditate B 114$^{b}$ simpliciter. Similiter, superficies potest significare quantitatem huiusmodi longam et latam sine profunditate sensibili; vel quantitatem huiusmodi sine profunditate simpliciter. Et res primi modi vocantur apud philosophos puncta, linee, vel superficies naturales. Et res $2^{i}$ modi vocantur puncta linee vel superficies mathematice. Et diversimode sencientes statuerunt sibi talia naturalia disparium quantitatum; sed omnia huiusmodi, solo intellectu noscibilia, sunt posita in suo termino naturali. Angulus eciam potest significare posicionem figure sensibilis $2^{m}$ concursum linearum lateralium ad punctum eius signabile naturalem; vel posicionem significanter simpliciter $2^{m}$ concursum linearum lateralium ad punctum eius mathematicum terminantem.

The first sense seems to be employed by Euclid. Not every 'indivisible', only that 'indivisible' of which a line is made up, is a point. This is rather a description than a definition;

Et iste videtur esse sensus Euclidis et aliorum mathematicorum loquencium de istis $4^{or}$ modis rerum. Non enim potest intelligi omne indivisibile esse punctum, quia tunc Deus et quelibet unitas ac principium cuiuscunque generis esset punctus. Ymmo sunt quotlibet indivisibilia situata, quorum nullum poterit esse punctus. Ideo melius et planius dicitur quod punctus descriptive est indivisibile compositivum linee. Et si obicitur quod linea, cum sit puncto posterior et compositivum, cum sit passio vel accidens puncto, non debet cadere in eius diffinicione: dicitur quod punctus, cum sit extra genus, describi potest, sed non proprie difiniri. Nec est inconveniens in tali descripcione poni quodammodo posterius. Verumtamen patet logico quomodo punctus

est prior linee in elementari composicione. Sed linea est prior puncto in finali racione, cum est finis gracia cuius est punctus. Et sic eadem causant se reciproce in dispari genere causandi. Et oportet proprietates capere logico differenciarum latencium in quotlibet describendis. Ulterius, quo ad decripcionem linee vel superficiei, notandum quod longitudo vel latitudo non est eius genus vel species, sed passio aut accidens; sed sicut punctus aut punctualitas est *substanciam esse punctualem*, sic linea vel linealitas est *substanciam esse linearem*, cui inseparabiliter accidit longitudo; et superficiem que est *substanciam esse superficialem* inseparabiliter consequitur quo ad speciem latitudo, licet eadem superficies posset nunc esse longior aut lacior, et nunc brevior aut striccior eadem, dico 2$^{m}$ materiam. Pro quo notandum quod in quolibet corpore est dare maximam lineam, maximam superficiem, et maximam multitudinem punctualium, que est prima mensura penes quam attenditur cuiuslibet talium magnitudo.

at any rate the word 'line' can enter into it, for lines and points cause each other diversely.

Note also that points, lines and areas are accidents of substances, and mean simply that a substance has position, length, or surface. In each body there is a maximum of length of surface and of number of points.

Ex quo patet quod eadem corporis magnitudo sit equalis sue maxime linee et sue maxime superficiei; et per consequens rectificata maxima linea mundi haberet duo extrema cum medio et proporcionem finitam ad quamlibet eius partem, manens continue causata: ut mundus. Hec tamen rectificacio est impossibilis, sicut et posicio linee simpliciter infinite. Talis enim foret infinitum maior mundo.

And its size is thus equal to its greatest length or surface; though in some cases such lines cannot be made straight.

2° patet quod linea non superaddit multitudini punctorum nisi continuacionem; superficies superaddit linee continuacionem linearum inmediatarum, et corporeitas continuacionem huiusmodi superficierum. Unde in predicacione 2$^{m}$ causam suscipiunt omnia hec 4$^{or}$ de se invicem predicacionem, licet non formalem.

The line adds nothing to the points but their continuity: the surface is but a series of lines, the volume, a series of surfaces that touch.

3° patet quod longitudo, latitudo, et profunditas non sunt quantitates sed quantitatem continuam consequentes, licet geometre propter ampliorem noticiam et differenciam accipiant longitudinem et latitudinem, loco generum linee et superficiei. Nec ista duo et profunditas correspondent proporcionabiliter quantitati. Nam nullum corpus est precise eque magnum, ut longum, | quia tunc ipsum et linea sua longitudinalis essent equalia;

Length, breadth and height are not quantities, and thus nothing is as large as it is long, for then it would be equal to its own length.

B 115$^{a}$

1. logico *pro* linee *(sic)* B. 28. multitudinem B. 29. lineam B.

A line may be equal in size to a body; but the body could not be of the same length. Length would be lost by merely turning the body in the sense of breadth.

et idem esset argumentum de qualibet superficie assignanda. Et de linea patet idem, cum quelibet linea infinitorum punctorum quo ad nos sit alicui corpori equalis cui repugnat esse eque longum cum eodem. Potest eciam deperdere longitudinem per circumlacionem, ut videtur, stante magnitudine. Ymmo magnitudo et parvitas sunt passiones quantitatis; et idem est iudicium de profunditate. Omnia enim ista suscipiunt magis et minus, $2^{m}$ relacionem quam superaddunt quantitati.

As for angles, Euclid's definition should be properly understood. If an angle is but a meeting of two lines it is an indivisible point, if it is their union, it is an aggregate of many extended things. But those who would attack my system require to learn what angles are. Divisions of angles into those that conclose a space or only an area; the latter into rectilinear and curvilinear, acute or obtuse; or described on a plane, when one side only may be curved, or both.

Ulterius quo ad anguli descripcionem patet quod diffinicionem Euclidis oportet sane intelligere supra verba. Nam primo videtur ex diffinicione Euclidis quod angulus sit tam contactus quam applicacio linearum; et si sit contactus, tunc indubie est indivisibilis, et potest manere non angulus; et si sit applicacio linearum, tunc est agregatum ex multis applicacionibus extensis. Ideo vellem quod sollicitantes se ad pugnandum composicionem continui ex non quantis per impugnacionem sentencie geometrice de magnitudine angulorum essent primo fundati in noticia quantitatis eorum; quia noticiam *quid est* oportet precedere noticia *quia est* de eodem.

Suposita ergo descripcione angulorum phisica, patet quod sicut figurarum, sic et angulorum quidam est corporeus et quidam superficialis; et superficialium quidam est rectilineus et quidam obliquilineus; et obliquilinearum quidam est in superficie convexa ut anguli sperales; in talibus enim habent $3^{s}$ anguli $3^{s}$ angulos rectos; ut patet de quadratis extime superficiei mundi. Quidam autem sunt anguli acuti obliquilinee, et oblique superficialis; ut anguli intrinseci zodiaci et equinoccialis; et alii anguli huius sunt obtuis; ut anguli extrinseci illis oppositi. Quidam autem anguli obliquilinei sunt in superficie plana; et tunc vel sunt obliquilinei $2^{m}$ unum latus tantum; ut angulus contingencie vel angulus intrinsecus sibi oppositus; quorum primus causatur ex porcione linee circularis et rectilinee eundem circulum contingentis, et $2^{us}$ causatur ex eadem porcione linee circularis et dyametri circuli concurrentis. Aliquis autem est oblique lineus $2^{m}$ utrumque

12. mlelligi *(sic)* B. 32. 30ei B. 36—37. 9tine B.
36—39. See pag. 35.

latus tantum; ut angulus causatus ex contactu duorum circulorum. Et angulorum superficialum rectilineorum quidam est rectus, quando linee recte super se eriguntur; quidam est obtusus, ut quilibet maior recto; et quidam est acutus, ut quilibet minor recto: et quotlibet sunt proporcionabiles divisiones de angulo corpores, ut patet faciliter adaptanti.

Rectilinear angles are divided into right, obtuse, and acute angles.

Sed videtur ex descripcionibus supradictis quod quilibet angulus sit multus per totum subiectum, et per consequens multus magnus. Videtur eciam quod ad eundem punctum essent quotlibet anguli; quia quot sunt figure sic posite ad datum punctum, tot sunt anguli. 3° videtur quod nedum descripciones Euclidis, sed eius sentencia, ut plurimum, est neganda.

Three difficulties. (1) The angle, belonging to the whole extent of its sides, is indefinitely great. (2) Any number of angles are in one point. (3) Euclid's theory of angles, as well as his definition, is to be denied.

Ad primum negatur assumptum. Pro quo notandum quod cuiuscunque mathematici substancia vel natura est indivisibiliter situata, et per consequens nullus talis angulus est quo ad substanciam suam magnus. Verumtamen 2ter potest intelligi angulum esse magnum; vel in natura propria quo ad molem, ut angulus naturalis, vel rescriptive quo ad basem; ut quicunque angulus mathematicus; et sic dicunt geometre omnes angu- B 115b los | rectilineos equales, quorum quecunque bases terminantes equalia latera indirecte incidencia sunt equales. Angulus enim naturalis est principium mensurans posicionem et quantitatem figure angularice, sicut et angulus mathematicus est principium eius. Ideo, sicut virtus, eciam indivisibilis, dicitur magna respectu principiati ab eadem, sic et angulus potissime, cum sit de genere respectuum; ut divisivum, proporcio, agencia, et quotlibet talia dicuntur magna solummodo respective.

*Answers.* (1) Denied. No angle can be great, in its essence, because the essence of things mathematical is indivisible. But we may say it has size either as to the space it contains, or as to its base. We may also call an angle great as to its effect.

Et si queritur de subiecto primo superficialis anguli, cum sit accidens, dicitur quod cuiuslibet talis subiectum primum est substancia tripunctalis, cuius quelibet duo puncta constituunt lineam vel basem minimam possibilem et 3m punctum possibilem dispariter, tangendo utrumque priorum.

Where is the angle of mere area to be firstly found? In three points that touch each other, of which two form the smallest possible base, and the third the apex of a triangle.

Unde patet quod quilibet triangulus minimus habet 3s angulos, in quolibet 3um punctorum conalium, quorum quilibet dicitur angularis respectu basis sibi inmediate; et sic angulus mathematicus est situ aliter in puncto mathematico, et essencialiter terminative in

So the mathematical angle is situated at the apex, but has its essence at

10. nullus B. 28 v'tus B. 36. cā^o B.

the base of this triangle, and exists accidentally at any part of its produced sides.

The solid angle is in the tetragon of four points, the smallest volume possible.

base minima bipunctali; accidentaliter autem tripliciter ad quamlibet basem suam. Primum autem subiectum anguli cuiuscunque corporei mathematici est substancia quadrupunctalis, que est corpus minimum possibile. Et proporcionaliter dicitur de angulo naturali. Anguli ergo non dicuntur corporei vel superficiales, obtusi, recte vel acuti, nisi quia effectus corporis extensi sunt huiusmodi. Angulus ergo formaliter denominat suum subiectum primum angulatum, et efficienter quodlibet subiectum cuius ipsum subiectum primum est pars. Nec oportet ipsum angulum esse per omnem ipso angulatum. Ymmo sicut non per totum Ethiopem est ita quod ipse est albus $2^{m}$ dentes, sed solum ad dentes, sic non per totam figuram est ita quod ipsa habet posicionem $2^{m}$ indirectum concursum linearum lateralium ad datum punctum, sed solum ad illum punctum. In eodem ergo situ adequato sunt angulus et punctus conalis figure sic angulate.

(2) As 'whiteness' may be common to many bodies, so angularity may be common without being multiplied. But we may grant that many angles exist in one point.

Et per hoc patet responsio ad $2^{m}$. Sicut enim eadem albedo partis est communis quotlibet corporibus iam participantibus sine eius multitudine; sic motus, angulus, et quotlibet alia accidencia, tam respectiva quam absoluta.

Conceditur tamen quotlibet angulos, tam naturales quam mathematicos, esse ad eundem punctum; sed non oportet quamlibet figuram ad datum punctum conaliter terminatam habere angulum mathematicum inmediate supra priorem: et eius mediatas habet angulum inmediate supra $2^{m}$; et sic de quotlibet angulis, quoniam constituunt unum angulum naturalem, qui est $2^{\text{pliciter}}$ divisibilis, ut patet ex dictis de concursu et communicacione linearum, et de quantitatibus angulorum. Unde ad omnem punctum mundi est angulus componens alium, et tamen nullus angulus extenditur per totum mundum, quia non est dare basem aut figuram $2^{m}$ aliquid ab eo distante, respectu cuius foret angulus. Sed sicut quidam vocant quamlibet figuram quadrangulam lineam, sic communiter vocarent quamlibet extensam posicionem figure ad conum terminantem et circa basem eius, angulum. Sed ista tercia wulgaris significacio terminorum est extra locucionem congruam geometri. Ex composicione ergo anguli mole magni ex

36. Perhaps *lineam* is a mistake for *quadratam*, or some other such word.

angulis inextensis potest patere composicio continui ex non quantis.

Et patere potest preterea quod angulus habet magni- B 116a tudinem preter molem: quod sic arguitur. Capio | $3^{s}$ angulos superficiales, qui equaliter constituunt angulum superficialem rectam, $2^{m}$ doctrinam prime Vitulonis, que docet angulum rectum datum in $3^{s}$ partes dividere equales. Et sint illi anguli A, B, C. Capio ulterius $3^{s}$ angulos superficiales equales, qui in $3^{bus}$ diversis superficiebus constituunt angulum corporeum piramidis trilatere, iuxta sentenciam penultime diffinicionis undecimi Euclidis; et tunc videtur quod angulus corporeus dicte pyramidis et angulus rectus superficialis sunt simpliciter equales, quia eorum tercie sunt equales: quod reputarent adversarii maximum inconveniens. Certum est tamen quod $3^{s}$ anguli mathematici superficiales constituunt quemcunque minimum angulum mathematicum corporeum; quia, ut patet ex dictis, quilibet huiusmodi angulus corporeus subiectatur primo in tetragono $4^{or}$ punctalium in cuius cono situatur, et ad basem tripunctalem essencialiter terminatur; et cum in illa basi tripunctali sunt $3^{s}$ linee minime, patet quod est dare $3^{s}$ angulos mathematicos superficiales terminatos ad differencias, $3^{s}$ lineas ad constitucionem anguli corporei requisitas; et sic ex talibus insurgitur ad angulum mole magnum.

An angle has magnitude which is not quantitative. Take a right angle; divide it into three equal parts; then compare it with a trigon of which each angle is equal to one of these parts; the plane right angle will thus equal the trigon; which, if all magnitude of angles were quantitative, would be a flat contradiction.

Angulus autem corporeus mathematicus non est mole magnus, sed habet *esse* situale in unico puncto cum $3^{bus}$ angulis superficialibus ipsum principiantibus. Et preter hoc habet *esse* causacionis in quolibet trium punctorum sue basis causantis. Sic enim vere conceditur similitudinem esse subiective in subiecto simili quod informat, et causaliter, obiective, vel terminative, in subiecto, quantumlibet distante, a quo dependet. Et hoc habet angulus mathematicus ultra punctum, cum omnis punctus sit absolutus, et angulus respectivus. Differt eciam angulus mathematicus corporeus ab angulo superficiali, in hoc quod talis angulus integratur quo ad substanciam ex angulis superficialibus, tanquam eius partibus qualitativis, licet non quo ad molem, sed tanquam partibus disparium racionum, convenientibus

The solid mathematical angle has no dimensions, only position of its apex and essence in its three triangles; also a causative *esse* in each point of its base. An angle has therefore relative, not only absolute being, like a point. The difference between a solid and a superficial angle, is that the former consists of the latter, as its parts.

6. vitulois B. 10—11. trilate' B. 12. $3^{e}$ *(sic)* B. 14. mie B. 39. $qu^{vis}$ B.

6. Vitulonis = Vitellionis. See *Logica*, I, p. 181.

Every physical angle is composed of a great many angles and substances. The mathematical solid angle has parts, the superficial has none; it can only be divided into the parts of which it is the cause, i. e. the figure that strikes the senses.

in genere anguli; sicut figura componitur ex finitis. Non sic autem de superficiali angulo quocunque. Angulus autem corporeus naturalis quicunque habet quotlibet angulos et corpora, que ipsum principiant; et patet quod non sequitur esse aliquos angulos mathematicos, superficialem et corporeum, coequales, cum primus sit indivisibilis quo ad substanciam, et reliquus habet partes. Ideo angulus superficialis mathematicus non est divisibilis in suas partes, sed respective divisibilis in suos effectus, que sunt partes posicionis figure sensibilis.

(3) Euclid gives a genetic definition of an angle; when two lines meet, they *produce* an angle. He likewise calls right lines and plane surfaces extensions, says that a sphere is the revolution of a semi-circle, and that a line moved parallel to itself makes a square.

A $3^{m}$ dicitur quod Euclides, more suo, describit angulum in predicacione $2^{m}$ causam. Nam ex ipso quod due linee alternate tangunt se $2^{m}$ applicacionem figure quam terminant in differenciam, causant angulum ad terminum utriusque; et quandoque econtra diffinit Euclides natura prius per suum causatum posterius; ut lineam et superficiem rectas vocat extensiones; ut patet primo elementorum. Speram vocat transitum dimidii circuli, ut patet libro undecimo; lineam ductam in se dicit superficiem quadratam perficere, ut patet libro $2^{o}$: et sic de | de quotlibet dictis huius philosophi, B 116b que ignorantes sentenciam universalium ignorabunt. Sensus ergo suus exprimitur per descripciones supra positas, si non fallor.

No mathematical angle can be divided as to quantity, but the magnitude of its base can be thus divided. Every right line may be bisected, and the two sections are properly called equal, so far as our senses go.

Nec obviant hec dicta sue sentencie, etsi finem quorumdam ipsum communicatum contradicant. Nam licet nullus angulus mathematicus dividi poterit quo ad molem, tamen dividi potest $2^{m}$ magnitudinem respectivam captam respectu sue basis, ut docet conclusio primi et quotlibet alie conclusiones eiusdem. Et sic quantamlibet lineam rectam dandam contingit dividere in duas medietates, quarum neutra divisibiliter excedit reliquam. Et omnes tales vocat sensibilis philosophus, satis vere ad sensum suum, medietates equales. Nam, capta quacunque linea naturali, contingit significare punctum eius medium naturalem, quia coniunctus utrique parti residue constituit duo equalia, que integrant suum totum. Talis enim punctus naturalis continet quotlibet puncta mathematica. Et sic intelligitur de centro circuli. Nam capta

15. duc$^{m}$ B.

34. *Sensibilis.* In the same sense as *physicus.*

dyametro equalium punctorum, nullus punctus mathematicus est eius centrum, simpliciter, sed punctus linee naturalis. Et per hoc solvuntur conclusiones $3^{ii}$ libri elementorum Euclidis. Nec capit ymaginacio duo puncta esse inmediata in eadem superficie, ut linea; ideo negat talia duo esse sensibiliter inmediata, ut patet ex A primi libri. Unde quererem a volente lineam dividere in duo equalia, utrum medius punctus manebit vel corrumpetur post divisionem. Si manebit: quare pocius cum una medietate quam reliqua? et si corrumpetur utrobique, sequitur punctum quemcunque esse accidentalem sue linee: quod est superius inprobatum.

As imagination cannot represent two points that touch each other, Euclid denies their existence for the senses. If you bisect a line, what becomes of the middle point?

Et idem est iudicium de divisione anguli. Nam nullus angulus mathematicus $2^{m}$ molem differre potest, cum sit indivisibilis quo ad molem. Si enim angulus superficialis quicunque esset divisibilis quo ad molem, tunc angulus contingencie est angulus rectus, et angulus intrinsecus oppositus angulo contingencie essent equales simpliciter: quod contradicit in $3^{ium}$ Euclidis elementorum. Dividere ergo angulum mathematicum ad sensum Euclidis est dividere figuram ipso angulatam $2^{m}$ lineas pertractas ad basim et conum dicte figure; et illa vocatur divisio anguli in effectum quodammodo similem; ac si quis divideret potenciam vel virtutem individualem in sua substancia ad divisionem sui effectus. Causaliter enim dicit philosophus, $3^{o}$ de Anima, ipsam habere partes virtuales.

No angle can differ from another in magnitude; therefore it is indivisible in that sense; otherwise the angle of tangency would be a right angle.

Ex istis et superius dictis satis patet quod si A, linea mathematica, cancellat B, lineam mathematicam, equalem in medio puncto orthogonaliter; et si, manente utraque recta continue, sed B (inmota A) declinet successive, quousque fuerit directe supraposita B, mediis punctis continue se tangentibus, quod statim cum A incipit declinare ab angulo recto ad acutum, movendo $2^{m}$ quemlibet eius preter punctum contactus, incipit A simul tangere multa puncta mathematica in B; quia aliter quemlibet punctum circumstarent infinita puncta, et minimus gradus superioritatis vel cuiuslibet denominacionis continue, sicut et quilibet angulus in sua substancia foret in infinitum divisibilis; que omnia sunt inpossibilia; ideo et antecedens.

Thus if the line A bisects B, equally long, at right angles, and then B is turned round till it coincides with A, the central points remaining the same as before, it is evident that A, from the moment it is no longer perpendicular will touch many of the points of B.

Et ex istis patet responsio ad illam famosam racionem contra dictam opinionem de composicione continui

A celebrated argument against our doctrine: the diagonal of a square and its

23. filbe B.

ex non quantis, qua probatur ex illa sequi quod omnis dyameter quadrati sit equalis | suo lateri; quia, si non, B 117a
sit A B C D quadratum cuius A dyameter non sit equalis A B lateri. Contra: precise tot sunt puncta in A B sicut in A D: ergo, sunt equalia. Antecedens probatur ex hoc quod si a quolibet puncto A B linee protrahatur ex transverso eque distanter ad costam quadrati linea recta usque ad C D, tunc de facto tangeret quelibet talis in utroque latere quadrati et eius dyametri unicum et disparem punctum a reliqua linea. Ex quo plane sequitur cum veris quod precise tot sunt puncta in data dyametro ut in costa.

side would be of equal length, for the number of points in both are equal.

If we draw parallels from one side of the square to the other, each will intersect the diagonal in one point; so to each point of the side there will correspond one point of the diameter.

Istud argumentum peccat in materia, cum quelibet datarum linearum oblique et non orthogonaliter dividit datam dyametrum, et per consequens contingit aliam tangere multa eius puncta, sicut patet ex nota proxima. Nec ex hoc sequitur aliquam linearum illarum esse curvam, vel regulariter dyametrum esse duplam, aut $3^{plam}$ ad costam, propter numerum duplum aut $3^{plum}$ punctorum integrancium. Stat enim illas lineas sic sectantes dyametrum tangere eadem puncta, cum omnes inmediate tangunt omnia sua puncta reciproce.

We answer that, as these parallels intersect the diagonal obliquely, they will each touch several points.

If the lines touch each other, some of the points they touch will coïncide.

Sed argumentatur contra illud, supponendo omnes lineas de quadratis esse rectas et in eadem superficie, iuxta peticionem primam primi Euclidis. 2° supponitur omnes dictas lineas transversales a latere ad latus esse incommunicantes. Et 3° argumentatur sic: quilibet punctus ad dyametrum est captus in aliam partem alicuius istarum linearum transversalium, sicut et quilibet punctus date superficiei quadrate; et aliqua earum habet duo vel $3^{a}$ puncta date dyametri, nulla communicante cum reliqua. Ergo quelibet habet totidem. Ex quo sequitur quod omnes ille simul habent in $2^{plo}$ vel in $3^{plo}$ plura puncta date dyametri quam sunt puncta alterius lateris iniciativa omnium illarum, et stat conclusio; scilicet, quod quelibet dyameter est $2^{pla}$ vel $3^{pla}$ ad latus sui quadrati.

*Reply:* 1rst. These parallels would no longer be straight. 2nd. They do not touch each other. 3rd. Each parallel intersecting the diagonal in a different part of its extent, the points they touch cannot be counted together.

Pro isto oportet negare consequenciam. Pro quo notandum, quod si una illarum linearum transversalium caperet in partes multa puncta date dyametri, et alia

Here we deny the consequence. One line may touch only one

10. vnĩc B. 24. dcq'9 B. 28. dyamet' B. 38. Pro—consequenciam *in marg.* B.

non, tunc non esset color in consequencia. Sed sic est in quolibet quadrato sensibili: ergo, etc. Nam in minimo quadrato, sicut et in quotlibet figuratorum punctorum quo ad nos, dyameter est equalis suo lateri; quia utraque eque punctalis. Tales autem sic, cum sint extra illud subiectum primum geometrie, non sunt directe de eius consideracione. Ideo non mirum si descripciones et proprietates figurarum geometricarum illis non congruant. Et in quolibet quadrato due coste extremales tangunt tantum duo puncta sue dyametri. Alie autem linee intermedie, si ad tantum declinent ab angulo recto quod oportet punctum proximum contactui incidere in suum proximum lateralem, inmediatum puncto contactus, tunc tangunt tria puncta de dyametro, et aliter non. Ad quod concipiendum supponatur ex prius declaratis situs esse inmobiles, et quemlibet punctum mundi in eadem superficie circumstare $4^{or}$ puncta, versus directiones $4^{or}$. Ex quibus sequitur quod quilibet $4^{or}$ punctorum inmediate circumstancium polos mundi tantum $4^{or}$ situs describit in die naturali. Et si queritur in quibus instantibus, dicitur a michi probabili quod, cum punctus equinoccialis fuerit in medio inter oriens et meridianum, tunc punctus inmediatus polo versus oriens incipit per posicionem vel per remocionem
B 117b de | presenti incidere in situm proximum supra polum; et, cum dictus punctus equinoccialis fuerit in medio inter meridianum et occidens, tunc incipit dimittere situm illum et incidere in situm proximum sinistrum vel occidentalem; et sic de ceteris quoad sibi. Quorum racio est, quia, cum punctus equinoccialis fuerit in medio talis contradictorie, tunc dividit angulum rectum centralem in duo equalia, et per consequens ad neutrum latus declinat. Et cum nichil potest poni in *esse* ex contingencia equali, patet quod racio est abdita apud deum quare pocius est in uno situ quam in reliquo.

point of the diagonal, and another several. In the smallest possible square, the number of points (two) is equal for the diagonal and the side; but this is beyond the scope of geometry. In every square the extremities of the sides touch only two points of the diagonal. The other lines sometimes touch three points, sometimes fewer. This difference depends on the movement and change of position of the world. At the poles there are four points touching the central point in a plane surface, and they move only four times a day: when the equinoctial point is equally distant from east and south, from south and west, and so on, the angles being equal at those moments.

14. cāⁿᵗ B. 18. dras = differencias B. 29. quadralis? B; quod s' B. 31. 9ᵈᵉ B. 32. adnetr B.

3. *Figuratorum.* I suppose that Wyclif means a square of points, thus ⁘ in which the number of points of the diagonal and the side are equal.

We should not be ashamed to confess our ignorance of such matters; it suffices that we know that God has ordered all things for the best.

Nec verecundetur quantumlibet subtilis philosophus fatere propriam ignoranciam in quotlibet particularibus, specialiter de finitate nature; ut puta quare Deus pocius produxit hoc individuum possibile nunc quam tunc; quare pocius hoc individuum quam aliud possibile, quare pocius ponit polum articum in B situ quam in C; et sic de quotlibet aliis, in quibus omnibus dicimus quod Deus ordinat istos propter melius ordinis universi. Et istum gradum melioritatis ut plurimum nescimus exprimere in particulari.

As soon as the movement begins, it is necessary that the points should change places by a quarter of a revolution; and the same is true of every revolving circle, and lines crossing each other. This explains how two lines intersecting not at right angles, sometimes touch by one point, sometimes by more. Yet the line crossed is not curved; curvity requires at least three points, as it proceeds from straightness.

Cum autem inceperit plus declinare ad unum $4^{or}$ situum semidyametralium, racio exigit quod tunc tangat punctus proximus centro vel poli situm proximo indivisibilem illius situs linearis semidyametralis. Et eadem est consideracio de quolibet circulo circumducto, centro eius quiescente; et de A linea cancellante B in casu superius posito, cum quotlibet similibus. Et ex istis convincere potest intellectus quomodo linea recta, oblique incidens super aliam lineam rectam, quandoque tangit duo puncta sua, et quandoque unicum. Et per idem in eadem superficie tales linee oblique se sectantes, quandoque communicant in unico puncto (ut puta, quando orthogonaliter se secant) et quandoque communicant in pluribus, videlicet quando $2^{m}$ medietatem anguli recti se secant, et semper cum acucius sese secuerunt. Nec sequitur ex hoc curvitas alterius linee. Quamvis enim curvitas sit extensa, nulla tamen eius pars situatur in situ punctali, aut in situ bipunctali; sed primo in tripunctali. Ideo oportet quod omnis obliquacio vel curvitas procedit a rectitudine, sicut omnis inequalitas ab equalitate. Quia ergo talia tria punctalia possunt esse eque distanter posita respectu alicuius trium dyametrorum mundi, vel in aliqua eorumdem, ideo stat ipsam servare rectitudinem.

Here we see that no one here below can know what the proportion of the diagonal to the side is; for no one can know which lines touch in one point only, and which in more.

Ex istis patet quod incertum est cuilibet hic vianti de proporcione dyametri sensibilis ad costam sui quadrati, eo quod dyameter, sicut dividit duos angulos quadrati in duo equalia, sic et quotlibet alia particularia per quorum medium incidit $2^{m}$ partes: et in tali posicione ignorari oportet que due linee taliter se secantes communicant in unico puncto, et

12. ca$^{nt}$ B. 20. t̃a$^{t}$ B. 40. quod que B.

que in $3^{bus}$; et per consequens ignorare oportet proporcionem, sicut et proporcionem anguli contingencie ad angulum rectum.

Si autem quis theologisat dyametrum mundi oportere constare ex punctis inequalibus, cum argumentatur non esse medium mundi simpliciter; nec quemlibet mundi intrinsecum circumstarent precise $4^{or}$ anguli recti, eo quod, dempto impari circumferencie, ita esset; et B 118a sic diceret totum mundum constare ex punctalibus | pariter paribus, cum aliter mundus non esset simpliciter divisibilis in medietates $4^{as}$ etc. (et sic de ceteris partibus, quo usque deveniatur ad indivisibilem unitatem); et posuerit insuper quamlibet circumferenciam circuli oportere constitui ex punctalibus pariter paribus, sic quod non est dare simpliciter medium quadre, quin angulus dividitur in duas medietates simpliciter: illi nunquam esset racio diversitatis quare, pro instanti divisionis anguli recti in duas medietates, punctus semidyametri proximus centro erit pocius in uno situ proximo centro quam reliquo.

If we say that the diameter of the world is composed of points unequally distant, denying that there is an absolute central point, and asserting the absolute symmetry of the points of which the circumference consists, there can be found no reason why one point should be in one place rather than another.

Illi autem qui $3^{o}$ ponunt Deum posse ponere iuxta situs punctales lineares alios situs punctales commixtos sine amocione alicuius situs, esset facile quod dyameter quadrati esset $2^{pla}$, equalis, vel quomodolibet aliter proporcionata suo lateri. Et tunc nec sensus nec racio convinceret conclusiones geometricas esse necessarias, nisi ex supposicione: quod credo esse verum, si non intelligatur condicionaliter, vel de subiecto intelligibili, sed actualiter demonstratum. Nec probabit geometer quod inter dyametrum quadrati et costam eiusdem servatur utrobique eadem proporcio: scilicet medietas proporcionis $2^{ple}$; sicut nec probabit quod dyameter quadrati, costa eiusdem, et medietas prima dyametri, sunt $3^{s}$ termini continue proporcionales. Et per hoc medium sequeretur conclusio. In omnibus enim talibus satis est mathematico quod non sit sensibilis defectus, vel quod sic oportet esse, suppositis suis principiis possibilibus; et ad istum sensum concludit. Ideo sciencia est satis necessaria. Nec scio adhuc aliquam istarum $3^{m}$ responsionum efficaciter improbare.

Or if we admit that God can add points to those which already exist without taking any away, the proportion of the diagonal to its side might be double, &c., Geometry would then be true only *by supposition*. The geometrician cannot prove that the proportion $\sqrt{2}$ exists everywhere in the diagonal. I have not as yet been able to refute these two last opinions.

Another geometrical difficulty: in this system

Et per hec patet responsio ad obiectionem geometricam, qua obicitur sequi exposicione continui ex non

17. inq$^{m}$, B.

one continuous quantity would be to another as one number to another; now this is the denial of incommensurable quantities.

quantis quod qualitercunque est proporcionabile continuum continuo, taliter est proporcionabilis numerus numero; quod repugnat conclusioni XI$^{e}$ 2$^{i}$ Euclidis, et conclusioni 26$^{te}$ 9$^{i}$ libri; et satis expresse diffinicioni 3$^{e}$ 5$^{ti}$ libri. Videtur eciam contradicere sentencie X$^{i}$ libri que ponit quotlibet quantitates continuas incommensurabiles, et quotlibet locis ponit multas passiones verificari de continuis que non verificantur de numeris.

*Reply:* Whatever is demonstrated for continuous quantities, holds also for the numbers of points of which they consist. But the geometrician does not resolve quantity into indivisible points, and denies that all quantities have a common measure that is itself divisible. Two lines, sensibly equal, may each contain different numbers of points, which may be prime numbers. Of course, if a line were divisible into two *absolutely* equal parts, this would be impossible.

Quo ad ista, certum est quod omne demonstrabile in continuis est eciam potissime demonstrabile in discretis, cum totum sit sue partes. Quicquid ergo demonstratur de quovis continuo, demonstratur de numero indivisibilium qui ipsum constituunt. Verumptamen geometer habet pro inconvenienti quod quantitas continua ymaginabilis resolvatur in partes indivisibiles [que non sunt] sue consideracionis, vel quod quecunque quantitates, continue vel discrete, communicent in parte sensibili aliquota utrique. Nec aliter vocant communicantes aut commensurabiles, si communicant in parte indivisibili. Unde nec in 5$^{to}$ nec in 7$^{mo}$ diffinit Euclides partem ut descripcio parti indivisibili conveniat. Non ergo sequitur quod omnis numerus totalis punctorum linee sensibilis est par, cum stat totalem numerum punctorum unius linee et totalem numerum alterius sibi paris esse numeros contra se primos, et per consequens lineas illas ad unum sensum esse in commensurabiles: ut patet ex 29$^{a}$ conclusione 7$^{mi}$ Euclidis. Si tamen omne continuum esset simpliciter divisibile in duas medietates equales, ut 4$^{rius}$, tunc indubie sequeretur contradiccio, si cum hoc omne continuum ponitur ex non quantis.

The senses err very much in their consideration of figures, &c., since no surface can be really square unless the number of its points be a square. This agrees with Euclid's definition of a square — a line moved at right angles to its own length.

Et ex istis concipit intellectus quantus error contingit sensibus, considerando figuras, equalitates, et alias passiones corporum, cum hoc sit indubie verum quod nulla superficies est quadrata, nisi numerus punctorum ipsa constitutivus sit quadratus cuius radix est numerus punctorum sui lateris. Nam ad istum sensum dicit Euclides quod linea ducta | in se constituit superficiem B 118$^{b}$ quadratam; et si ducatur in se cubice, tunc cubum constituit. Unde, sicut bis duo constituunt primum numerum superficialem quadratum, ita (capta linea pedali)

15—16. que non sunt *deest* sue sue B. 16. 9ſi°9 B. 36. 9dtus B.

continens tot puncta quot sunt illius linee, constituunt superficiem quadratam pedalem; et continens tot superficies, constituunt cubum pedalem.

Ex quo plane sequitur quod non omnis quantitas cubica vel superficialis constat ex punctis paribus; nec omnis ex imparibus. Patet prima pars ex hoc quod omnis numerus circularis cuius quinarius est prima radix est impar, ut patet ex natura numeri circularis. Ymmo quilibet numerus quadratus videtur esse impar, et per consequens cum quotlibet huiusmodi numeri sint quadrati et cubici, patet quotlibet huiusmodi esse quantitates ex punctis imparibus constitutas. Et 2ª pars patet de quotlibet aliis numeris quadratis, quorum radix est par numerus.

Not every quantity, whether cubic or square, consists of an odd or of an even number of points.

2° patet quod non quecumque proporcio signabilis est quadrati ad quadratum, et ita de aliis speciebus figurarum. Patet, ex hoc quod qualiscunque est proporcio figure ad figuram, talis est numeri ad numerum; sed non qualiscunque proporcio signabilis est inter unum numerum quadratum et reliquum: ergo nec inter unam quantitatem continuam quadratam et reliquam. Ex quo patet quod nec corpus nec superficies quadrati potest quelibet augeri vel minorari, servando continue quadraturam.

Nor are all square or cubic quantities commensurable, since numbers of points are not necessarily so; thus it is not always possible to change the form of a given square, keeping the same square number of points.

3° patet quod ambiguum est philosopho si omnis circulus sit quadrabilis, et econtra: ymmo si alicuius circuli quadratura sit scibilis. Nam, si oportet omnem perfectum circulum constare ex punctis pariter paribus, iuxta evidencias supra dictas, vel supra tactas, patet quod est impossibile aliquem circulum adequare quadrato, cuius radix est primus numerus circularis: et sic de quotlibet aliis que non constant ex numeris pariter paribus. Ymmo patet intendenti quod illo supposito, solum quantitas quadrata cuius radix est quadratus foret circulo coequanda. Si autem ex quolibet numero pari punctorum ultra 10, constat pariter cubus et solum ex tali, adhuc patet illud de quolibet quadrato constante ex numero ipsi circulari. Et ex isto patet quod argumentum buffonis non sequitur ex dubio: *cuicunque*

It is doubtful whether every circle can be squared, and whether the quadrature of any circle can be found.

It by no means follows that, if we can find a circle (or a

1. co$^{us}$ *pro* continente B. 2. co$^{us}$ B. 7. c'cu$^{r}$9 B. 8. c'cu$^{r}$ B.
29. s̈b B. 31. p'9 B. 36. p̈rt cul9 B. 39. z B. 39. briffonis? B.

number) larger than a given one, and again a circle (or a number) smaller than the same, we can find a circle or number equal to it.

*contingit dare circulum maiorem, dato quadrato, et contingit minorem eodem: ergo contingit dare circulum sibi parem;* sicut non sequitur: *contingit dare numerum parem maiorem, dato numero circulari, et contingit dare numerum parem minorem eodem: ergo, contingit dare numerum simpliciter sibi parem.*

The root of the difficulty is that the number of points is infinite *for us* in each case, and we do not know whether it is odd or even.

Radix autem ambiguitatis huius materie est ex hoc quod nemo scit de quovis numero sibi infinito, utrum sit par vel impar. Et per consequens non scit de totali numero punctorum mundi sue circumferencie vel dyametri sue, si sit par vel impar; quia videri poterit quod, si numerus totalis punctorum sit pariter par, consequi ad hoc numerum punctorum sue dyametri esse pariter parem, eo quod, diviso totali situ mundi in duas medietates equales incommunicantes, situs centri indivisibilis cum neutra se teneret. Ideo videtur quod 6 puncta mathematica conglobata constituunt cum aliis centrum sensibile; et sic quelibet mundi dyameter foret pariter par, cuius una medietas se teneret cum una medietate quantitatis mundi, et alia cum reliqua. Videtur eciam quod quelibet linea sit circularis, sicut quadrabilis, et per consequens quodlibet quadratum equale circulo, et econtra, si non obsit maxima magnitudo. Totum istud requirit sensibile scrutinium diligenter dispositi, quod iste locus ex tam multiplici non permittit.

The sensible centre of the world consists of six mathematical points taken together. Every line can be circled or squared; thus every square can be equal to a circle; but we cannot here go into details.

Another objection: the smallest square (or other figure) possible is a circle. These infinitesimals are beyond the province of geometry, and the names of squares, &c. do not properly denote them; or rather these bodies are at the same time triangles (squares, pentagons, hexagons, heptagons) and circles;

Et si argumentatur ulterius sequi ex oposicione quod quadratum et qualiscunque figura minima sit circulus, dicitur ut supra quod tales figure minime sunt extra consideracionem geometri; ideo descripciones figurarum quas ipsi ex opposito distingwunt, non realiter illis conveniunt; sed sicut figure aliunde sunt in suis premordiis | confuse, sic figure corporum in suis primariis ele- B 119ª
mentis. Unde prima figura, que [est] triangulus constans ex $3^{bus}$ punctis, dici potest primus circulus cui insit summus gradus circularis, que est indivisibilis quo ad molem: et illa est simplicissima superficies. $2^{a}$ figura est quadratum $4^{or}$ punctorum, que, posita $2^{m}$ $3^{s}$ dyametros, constituunt minimum corpus; sed et huic figure convenit circulus, sive spera, et illa spericitas est maxime arcuosa, multiplicata per totum, cum sit primus gradus

8. deq'uis B. 25. m͡l^ci B. 30—31. r'ªtit' illis ǵn͡t B. 33. est *deest* B.

et simplicissimus. $3^{a}$ figura est penthagonus qui $2^{m}$ diversam posicionem potest esse circulus vel pyramis. Si enim punctum aliquem inmediate circumstent $4^{or}$ puncta in eadem superficie, tunc ille punctus est centrum circuli habentis duas dyametros tripunctales; et quia illud centrum communicat cuilibet earum, ideo est quelibet $4^{or}$ semidyametrorum bipunctalis, et circulo circumferencie ex $4^{or}$ rectitudinibus et $4^{or}$ curvitatibus causata. Si enim $4^{or}$ punctis, contituentibus primum corpus, addatur conaliter $5^{us}$ punctus, tunc erit confusa pyramis, $4^{a}$ figura est exagonum constans ex sex punctis; et illa potest esse linea, superficialis, vel corpus, sicut due proxime, $2^{m}$ diversitatem posicionis suorum elementorum. Et potest esse superficies $4^{angula}$, vel exagonum; et sic confuse circulus vel triangulus habens quodlibet laterum tripunctale; et patet consideranti figuras numerorum, de quibus 8 Euclidis et secundo Aristotelice Boecii. Et in casu quo sit corpus, potest esse spera, vel pyramis, vel exagonum imperfectum. $5^{a}$ figura est eptagonum, ex $5^{e}$ punctis constans; et illa potest esse linea, superficies, vel corpus, $2^{m}$ diversum modum posicionis; sibique competit perfectius racio spere, dum versus 6 differencias circumstant 6 puncta, $7^{m}$ quoad centrum.

or if one point of the four last is not on the same plane, pyramids (of three, four, five and six sides) and spheres. All these may also be in line.

Unde $2^{m}$ istas $5^{e}$ figuras numerorum primorum posuerunt antiqui $5^{e}$ species corporum simplicium, secundum $4^{or}$ elementa, et $5^{tum}$ neutrum; et istas $5^{e}$ figuras appropriarunt ordinate istis $5^{e}$ corporibus, ut patet per Themistum super $3^{um}$ celi et mundi. Et ad exemplar istorum sunt tantum $5^{e}$ figure corporee regulares, ut patet 13 elementorum, conclusione $17^{a}$; et hinc sunt tantum $5^{e}$ figure repletive loci; ut patet $3^{o}$ de celo $68^{o}$. Hinc eciam exemplantur $7^{em}$ species speculorum regularium, ut patet libro $5^{o}$ Vitulonis, conclusione 8. Ex istis colligitur quod prima omnium figurarum, quo ad elementarem composicionem, est triangulus; et prima ac perfectissima quo ad finalem causacionem est circulus. Unde licet Euclides prius

The ancients according to these five figures, admitted five simple bodies: four elements, and a fifth (primal matter?) that was neither; there are also only five regular volumes; and there are seven sorts of regular mirrors. The triangle is the first of figures as to simplicity; the circle, as to perfection.

18. .2. f,° ap^ce boc^n B. 24. q B. 25. a'^m B. 27. $5^{e}$ B. 28. ap'parut B. 29. f'r B. 33. $\widehat{68}^{o}$ B.

34. Vitellionis. *See above*, pag. 51.

tractat de triangulis quam de circulis; tamen primam passionem trianguli demonstrat per diffinicionem circuli, innuendo quod circulus sit triangulo prior perfeccione causalitatis.

Sense cannot conceive this, and must always give us trouble. Even our intellect can but confusedly perceive this, here below.

In omnibus istis oportet sensum sollicitari, cum non capiat ista dicta. Licet enim longitudo linee mathematice et latitudo superficiei mathematice capiantur a sensu in aliis, non tamen in subiectis suis primis: sed et intellectum viancium oportet subtilitatem istius materie plurimum ignorare. Necesse est namque duas lineas rectas inmediate poni in divisione mundi, et ab eisdem terminis oportet duas lineas indentatas progredi sic, quod una habeat in partem quemlibet datorum punctorum parium linee inmediate supponente; et econtra de altera; sic quod, quot sunt combinaciones parcium talium rectarum linearum, tot sunt diversitates possibiles linearum equalium terminatarum ad eosdem terminos, sine hoc quod aliqua diversiter sit curvata; sicut eciam corpus mathematicum componitur intrinsece | ex superficiebus, punctis, et lineis, sic stat cor- B 119b poris mathematici unam terciam esse corporeitatem, $2^{am}$ superficiem, et $3^{am}$ lineam sive punctum; et sic de quotlibet combinacionibus. Nec est hoc plus inconveniens, sed longe plus patulum, quam quod figura, numerus, vel relacio, componatur ex partibus disparium specierum. Et racio est, quia subiecta inmediata istorum sunt substancie materiales, corporee, superficiales, vel lineares, que omnes (eiusdem speciei specialissime) integrant idem. Ideo oportet quod adequata eorum accidencia coextensa integrent eandem magnitudinem vel figuram. Non autem componitur accidens extensum de accidentibus disparium specierum, que quidem accidencia informant subiecta inmediata disparium specierum; quia talis forma foret etrogenia et non simplex.

The greatest possible angle is the angle in the centre of the world, caused by two lines, each of which is tangent to half of its diameter;

Et ex istis patet quod est dare maximum et minimum angulum possibilem; maximum, ut angulum in centro mundi, causatum ex incidencia duarum linearum inmediatarum semidyametri mundi oppositis. Minimus autem

21. $3^{am}$ B. 38. $o^{t\rho}$ B.

10. *Intellectum . . . ignorare.* As if to illustrate this truth more clearly, Wyclif gives us a long paragraph that seems incomprehensible. There is no doubt, however, that there are mistakes in the text; as, *supponente* (l. 14), agreeing with nothing.

angulus est figure cuius basis est bipunctalis, et cuspis quantumcunque linealiter prolata. Angulus autem contingencie datur, sicut et quicunque alius corporeus; et cuilibet angulo in proporcione finita noscibili, si non obesset ignorancia comparandi.

the smallest has two points for its base, and its apex as far off as possible.

Quotlibet sunt talia argumenta, quibus multi nituntur inpugnare dictam sentenciam. Sed ex predictis sumi potest responsio ad maiorem partem arguciarum quas alii multiplicant in hac parte. In ista namque materia particularius et diffusius sum disgressus, ut hic dicta occasionem dent posteris ad considerandum subtilius composicionem continui ex non quantis.

We have now answered the principal arguments drawn from geometry, and have gone into this question more at length, that it may be properly studied.

Tercio, videtur sequi quod nichil potest rarefieri, nec duo corpora coextendi, cum materia prima non potest componi ex suis partibus intensivis, et sic non esset dare situm corporis subtilis, inmobilis, quem ingredi potest quodcunque corpus glorificatum, ut theologi locuntur. Nec essent elementa in mixtis, sed corpus quantitative compositum ex non corporibus, et motus ex non motibus, et esset status in utroque termino lacionis motus.

*Third Objection.* *a)* No rarefaction or condensation is possible; *b)* nor any space through which glorified bodies can pass; *c)* the elements are not in their compounds; a body, a movement, is made up of that which is neither.

Hic dico quod dupliciter est rarefaccio intellecta: primo modo, quod corpus occupans situm corporeum sine adquisicione materie successive occupet situm maiorem ad omnem eius punctum per egressum parcium intensivarum materie, vel quomodocunque aliter. Et correspondenter de condensacione. Sed talem rarefaccionem vel condensacionem credo non posse esse, sicut nec rarefaccionem infinitam vel condensacionem ad punctuale. Et sic de multis varie ymaginatis in ista materia. Non enim potest aliquid rarefieri, nisi vel per extensionem, vel per evaporacionem materie inbibito corpore alieno; et econtra de condensacione. Unde 2° modo dicitur aliquid rarefactum, quod sine pluri sui materia partes eius ponuntur extensius per intrinsecam occupacionem corporis alieni. Sic enim spongio compressa dilatatur per ingressum aeris; et simile est iudicium de lana, farina et cinere, et quotlibet similibus in quibus est intercapedo notabilis corporis continentis. Econtra autem, condensatur corpus, cum arte conprimitur extruso corpore alieno, ut aqua vel

*Answer.* *Rarefaction* and *condensation* may mean that, without any addition or loss of matter, a body may occupy more or less space; which I consider to be impossible.

Or the words may signify that a body occupies a greater or less space on account of the presence or absence of another body;

1. c^us^pρ B. 2. ꝑtclata B. 3. datus B͡. 10. dctaȝ B.

aere; nec aliam rarefaccionem vel condensacionem convincit racio, experimentum vel auctoritas.

It is foolish to believe that a house is really filled with smoke and 'no air, or that nothing but mist can fill a large space. There are a great many interstices filled with subtle bodies, air and water. All bodies are said to have pores, even glass; this must be so, as the lighter elements in every compound fill its pores.

Unde fatuum est credere quod, stamine humido, unctuoso, vel alio combustibili resoluto in fumos, tota domus impleatur fumis huiusmodi sine commixtione aeris inclusi. | Et idem est iudicium de nebula exalata, B 120a que videtur sensui decepto occupare regionem notabilem sine commixtione corporis alieni. In omnibus enim locis in quibus fiunt tales motus, sunt corpora subtilia commixta cum materia terrestri, ut aer vel aqua. Nec est dare in loco nostro, de aliquo illorum, partem sensibilem que sit elementum purum, sed est quidam imperfecta mixtio ubique locorum nostrorum. Unde Urso et alii philosophi ponunt omne corpus esse porosum; in tantum quod philosophus dicit vitrum esse porosum; quod eciam oportet concedere, cum elementa oportet habere loca propria in mixtis, et per consequens iuxta elementa grossa oportet ponere elementa subtilia, quorum situs porus vel porositas nominatur.

Rarity and density sometimes signify the spaces left between the parts of a given body, and sometimes the bodies which occupy those spaces. Aristotle and Gilbert de la Porée do not make this distinction. In the first sense, only compound bodies are rare or dense; in the second the sky is the most rarefied, and the earth the most dense of all things. Rarity is in direct ratio with the proportion of the rare element in the compound, and in inverse ratio with that of the dense element,

Unde notandum quod rarum et densum dicuntur equivoce; nunc de posicionibus mixtorum, quorum partes sparsim aut unite iacent cum mixto corporis alterius speciei; et nunc de subtilitatibus aut corpulenciis, quibus corpora dicuntur subtilia vel terrestria. Et in ista equivocacione laborant Aristoteles et Gilbertus Porretanus, hoc est, auctor 6 principiorum. Quorum primus ponit raritatem et densitatem esse posiciones, et non ponit ipsas esse qualitates. Primo modo loquendo, possunt raritas et densitas solum mixtis competere. Sed 2° modo celum est rarissimum; et sic gradatim usque ad infimum elementum, ita quod terra pura sit summe densa, et celum purum summe rarum. Et certum est quod isti sensus sunt valde equivoci, et pro ista materia cum diligencia memorandi. Raritatem autem primo modo dictam dixi quondam attendi penes magnitudinem situs quem rarum cum corpore alieno commixto occupat in comparacione ad peneitatem sue materie; sic quod raritas positive intelligitur quo ad situm, et privative quo ad multitudinem materie. Econtra autem densitas privative quo ad situm et positive quo

26—27. Poletanus (!) B.

ad multitudinem materie. Unde non opponuntur privative, sed quodammodo relative, ut magnum et parvum, intensum et remissum, cum ceteris similibus.

Sed obicitur per hoc quod, iuxta hanc viam, quodlibet elementum, proporcionaliter ut esset maius, continet plus de materia. Consequens falsum. Probatur 3^r. Primo, quia tunc ignis iuxta communem proporcionem in 1000^lo plus contineret de materia quam terra. Patet deduccio, supposito quod omne elementum superius sit ad proximum inferius 10^lum quantitate. Consequens tamen falsum; quia elementa, ut superiora, minus habent de materia et plus de forma. 2°, quia tunc omnia corpora simplicia essent precise eque densa et eque rara: consequens contra communem scolam que ponit ignem in ea proporcione rariorem terra, in qua proporcione est ea maior; ut sic servetur equalitas multitudinis sue materie. 3° videtur esse contra experimentum, quo experiuntur de quantumlibet parvo denso generari quantumlibet magnum leve: ut ex uno pugillo aque, 10 pugilli aeris; et proporcionaliter de aliis elementis, in quibus videmus materiam duci ad circumferenciam, sicut econtra in generacione aque ex aere, ducitur ad centrum: ut patet in pluvia. Cum ergo non sit dare vacuum, sequitur quod elementum purum superius sit naturaliter inferiori rarius.

It is urged that in this view, the quantity of matter in an element would depend on the space it occupies. This is false. For, 1^rst, fire would contain 1000 times more matter than earth, if we grant that each element has ten times more quantity than the one just below it. But the elements contain more of form and less of matter, according as their place is higher. 2^nd: All elements would be equally dense: which contradicts the whole School. 3^rd: It contradicts experience a little water generates much steam.

Ad primum conceditur conclusio principalis. Et ulterius conceditur quod, supposita proporcione tacta unius elementi ad reliquum, ignis est in 1000^lo plus habens de materia quo ad multitudinem quam terra; et cum omne elementum proporcionaliter habet de forma ut de materia quo ad multitudinem, patet quod in 1000^lo habet plus de forma, et proporcionaliter de aliis elementis. | Nec derogat hoc perfeccioni mundi, sed pocius atestatur quod plurimum sit de elemento perfectissimo, et minimum de elemento inperfectissimo integrante. Verumtamen elementa ut inferiora plus habent de condicionibus materie, et elementa [ut] superiora, plus de condicionibus forme: ut terra inter omnia elementa est

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*Answer* 1^rst. We admit that, granting the supposition, fire has 1000 times more of matter than earth; but also 1000 times more of form. Thus the most perfect element is the most abundant.

6. 9us^m B. 34. perfectissimum B. 37. ut *deest* B.

8—10. 1000^lo 10^lum. We must remember that the *natural* place of each element was as follows; *earth,* nearest to the centre; then, water; then air, and fire last of all.

Thus earth is the most apt to receive impressions, most palpable, least active and least productive of movement; while the superior bodies are less mobile, and more transparent.

maxime possibilis inpressionibus peregris, ideo ordinavit naturis ipsam constantem in medio mundi ad terminandum copiosius incidencias varias angulares luminum celestium. Unde est tactui naturaliori sensuum noscibilior, minus activa et motiva; que omnes noscunt esse condiciones materie et a condicionibus forme plurimum elongate. Econtra autem corpora superiora sunt paucioribus modis mobilia, perspicua ad recipiendum lumina celestia, ut sic sint media ad modum corpora terrestria.

The first heaven can move only with one simple motion, the others with more; but none can be moved against their nature. The sphere of fire is the most like that of the sky, and so downwards.

In tantum quod primum celum ponitur moveri unico motu simplicissimo, et alii celi inferiores pluribus. Omnes celos tamen ponunt philosophi exemptos a violencia, in spera servare eundem situm totalem, nec aliqua materia motus habente contrarium transmutari. Et de spera corruptibilium ponunt regionem supremam ignis multum conformem superioribus lacionibus, et sic gradatim usque ad terram: in tantum quod propter elongacionem istorum superiorum a sensibus, quidam ponunt ipsa vacua, alii puras formas, et alii corpora multum formalia. Unde lux, color, et huiusmodi sunt qualitates vitales, cum quibus anima intellectiva, suprema forma naturalium, copulatur corpori tanquam forma et motrix. Sic enim homines plus habentes de spiritibus lucidis sunt magis ingeniosi; et in luce et claritate proporcionali extrinseca tam homines quam bestie naturaliter delectantur, horrentes tenebras; cumque calor naturalis et humidum subtile extincti fuerint, cessat animacio qualitatibus mortificantibus ad centrum ducentibus. Ex multis talibus potest attendens convincere quomodo elementa superiora plus habent de condicionibus forme, etsi longe plus habent de natura materie.

Sight, colour, &c. are vital qualities, by which the intellectual soul is joined to the body as its mover. As men who have more lucid spirits are more intelligent, and all animals love light, so the extinction of natural warmth and moisture causes death.

Ad 2$^{am}$ racionem, dicitur quod oppositum sequitur, cum raritate, que est qualitas superhabundantis, dyaphana [excedunt]; et inferiora, ut excedunt in oppacitate, ita in densitate, que est qualitas. Non sic quod in uno corpore equalis quantitatis sint punctalia spissius posita quo ad locum quam in quolibet sibi pari. Et quo ad raritatem et densitatem, que posicionem sonant, multas implicia ipsis participant extra mixta. Pro mixtis autem sunt elementa superiora magis pauca, et per consequens rarius posita.

2nd. It is quite the contrary. The superior bodies have more rarity and transparency; the inferior, more opacity and density. But, in the sense of closeness of particles, only compounds are rare or dense.

1. pe'gris B. 34. excedunt *deest* B.

8. *Perspicua*. The "crystallines", for instance.

Unde, sicut semen est rarum in terra, dum paucum semper gignitur in magna area; fides autem virtus est rara in populo, dum in multo populo sit parum fidei, sic in mixto terrestri est parum ignis aut aeris, dum natura paucos igniculos spargit cum multo terreo. Nec oportet quodlibet elementum in mixto continuari cum alio sue speciei. Nec obest tali dislocacioni quod corpuscula distancia constituant unam substanciam corpoream; quia res communes dicunt nunc colleccionem suorum suppositorum, et nunc dicunt simpliciter naturas huiusmodi, sic quod tam homo quam materia prima, etsi partes dividantur ab invicem, manent perpetuo; et sic elementum, quamtumlibet fractum in minucias in mixto, manet continue eadem substancia. Et per hoc patet responsio ad communem conclusionem qua queritur utrum elementum mixtum sit rarum, vel totum compositum ex elementis. Nam utrumque est rarum B 121[a] communiter, | sive elementum sit unum continuum per totum, sive discretum minutanter sparsum. Et utrobique est multitudo parcium rari, subiectum raritatis, quo extenditur modo suo.

Seed is rare in the ground, when there is little on a wide extent; faith is similarly rare in a people, and in a terrestrial compound there is little fire or air, when their proportion to the amount of earth is every small. This breaking up of the elements does not destroy their substantial unity. Both the element and the compound are thus rare.

Ex quo notandum quod elementum quodcunque, commixtum cum altero, est precise eque rarum vel densum in mixto, sicut foret sine mixtura quo ad raritatem vel densitatem 2° modo intellectas; quia ad omnem eius punctum intrinsecum correspondet tanta raritas vel densitas absoluta. Sed super huiusmodi raritatem habet raritatem respectivam de genere posicionis, quam non haberet, si esset a quolibet commixto penitus depuratum. Unde, ad concipiendum talem commixtionem, oportet primo capere unam multitudinem corporum disparium specierum, constituentem quoddam unum; 2° oportet attendere ad totalem situm quem occupat talis globus; et oportet 3° attendere ad quantitatem partis illius situs occupate per unum illorum, et penes paucitatem talis multitudinis disperse in comparacione ad quantitatem loci oportet attendere illius multitudinis raritatem.

The element is in the compound just as rare or as dense as it is out of it, though not in the sense of porosity or of closeness; but it is also porous when not completely pure of any mixture of any other element. Take a mass of different sorts of bodies, note the space occupied by the whole, and by each part of a different sort: thus alone can we judge of its density.

Unde raritas respectiva non solum dicit posicionem, sed eciam relacionem ad mixturam [et ad] constituencia quoddam unum; quia stat eandem terram inmotam quo ad situm esse respective raram, et desinere esse

1. fe$^{m}$ B. 2. git$^{r}$ B. 23. mixtum B. 33. gleb, (!) B. 37. attendere illius multitudinis oportet B. 39. et ad *deest* B; *ib.* 9sti$^{cia}$ B.

It is quite false to fancy that the rarer any element is, the less of matter it contains.

sic raram per gravacionem terre ex commixto relico elemento. Unde falsa et infundabilis est ymaginacio qua putatur elementum, eo quod rarius, eo paucius materie continere; ut precise tanta sit multitudo materie spere ignis, quanta est multitudo materie spere terre, vel alterius elementi.

3rd. There is no experience where the senses err. I once was so foolish as to think that a pigment mixed with earth was coextended with it, because the colour was apparently everywhere.

Ad $3^{m}$ dicitur quod error sensus excludit experienciam; nam errando putatur quod gravatum manet utrobique inmixtum corpori alieno. Unda ad tantum desipui quod putavi zimare, id est videre eciam vel alium pulverem colorantem, cum terra liquata vel alio miscibili coextendi; quod tamen est error intellectivi maniacus, cum minuta corpora iuxta posita causant fantasiam coloris disparis; sic quod credens solo sensui iudicat quod per totum subiectum fit disposicio uniformis, sicut in mixturis pannorum et quotlibet aliorum artificialium contingit fieri: multo magis ergo in subtiliori composicione nature. Et isto modo contingit de omnibus qualitatibus $2^{is}$ vel formis resultantibus, quod est dare mixtum agregatum eis subiectum; et non cuilibet parti quantitative subiecti sui primi correspondet appropriate pars aliqua talis forme; sed satis est quod cuilibet parti quantitative illius nature correspondeat talis forma. Sic ergo, quando lignum comburitur, partes ignee et aeree sparguntur superius, et commixte cum medio manent continue eque magne, etsi exalerentur usque ad celsitudinem spere ignis. Nec credo quod experimentator ex noticia sensuali convincet oppositum.

The forms resulting from combination are not quantitatively everywhere in the compound. When wood is burnt, the fiery and gaseous parts ascend on high, but never become larger than they were.

In this case a great quantity of fire and air is generated, and seek their natural spheres, while the previous form (of wood) perishes. Heat unites homogeneous and disperses heterogeneous substances.

Hic tamen ingeniatur natura, quod mixtum, multum terre habens, dummodo habeat parum ignis vel aeris, cum sint per contrarium dissolutum, tunc generantur multe minuticie ignis et aeris; et ipse, cum aliis quadam violencia cathenatis, petunt $2^{m}$ multas dyametros loca naturalia, pereunte forma superaddita continente. Sic tamen congregat calor homogenia ad invicem et disgregat eterogenia ad invicem, dans generato proporcionaliter de loco dicto, ut de forma. Econtra autem in resolucione gravium que $2^{m}$ angulum descendunt ad centrum. Et, propter istam intercepcionem medii, inter levia que $2^{m}$ dyametrum moventur ab angulo, et extrinsione medii inter gravia que moventur ad

1. $\bar{9}^{o}$; B. 4. otine' B. 10. ȝimar' i. vide' et$^{e}$ B. 35. cum *vro* tamen (!) B.

angulum versus centrum, creditur quod hinc inde sunt
B 121b absoluta | raritas et gravitas adquisite, computando cum summo aereo totum medium interceptum.

Ex istis facile est videre quomodo pluvia gravantur; nam nubem vel unbeculam, sive nebulam, in qua sunt 4or simplicia cathenata, dissolvit nunc calor, nunc frigus; et, segregato subtili terreo racione conveniencie cum igne et aere, exsudat aqua formam spericam. Et quia deficit sustentans, quo usque ex illis guttilis aqua notabilis magnitudinis sit unita, ideo guttatim descendit secundum formam maiorem aut minorem, proporcionaliter ut exalacio commixta celerius vel tardius segregatur. Aquam enim, racione sue fluxibilitatis, stat colabi: sed terra, racione constancie et siccitatis, diucius cathenatur.

How rain is formed: sometimes heat, sometimes cold, dissolves the clouds; the subtle terrestrial part goes off with the air and fire, and water remains, which takes a spherical form, larger or smaller, according as the dissolution is more or less rapid.

Ex istis colligitur quod nullum corpus potest esse maius aut minus quam prefuit, nisi propter adquisicionem aut deperdicionem materie, quamvis putatur quidlibet rarefactum esse maius quam prefuit, ignorando situs quos perdit intrinsecus, sicut et ignoratur commutacio situum extrinsecorum pro intrinsecis in partibus condensati. Et patet quod vera sentencia de raritate et densitate non obviat huic vie.

It is clear that whenever a body takes more room than it did, it is because of particles added to it; and the converse is true for condensation.

Ulterius videtur michi probabile quod non est possibile duo corpora coextendi, cum nulla materia prima potest componi ex suis partibus intensivis. Patet sic. Conclusio opposita non posset verificari, nisi materia punctalis componeretur ex partibus intensivis; et tunc, rarefacta materia vel condensata per totum, vel rarefaccione vel condensacione durante per tempus, ut adversarii locuntur, sequitur quod corpus motum in infinitum rarefieret, vel in infinitum condensaretur, ante quodcunque instans signabile; quia si non, da A pedale terre uniformiter rarefactum per horam 2m totum, et patet (cum in quolibet instanti illius hore exibit a quolibet punctali materie unum aliquod iuxta positum)

I do not admit the possibility of two bodies occupying the same space. If that were possible, matter must be more or less intense, which is not admissible;

1. hic̄ B; *ib.* m̄ B. 8. aliquando *pro* aqua B. 13. Aqua B. 14. colabr̄ B.

26. One great division of *parts* is into extensive and intensive parts. Matter, as such, must be extended. Heat, cold, intelligence, virtue, etc., having no extensive parts, and yet admitting of more or less intensity, are said to be made up of intensive parts.

quod unice quodcunque instans dandum erit totum infinicies quo ad nos duplicatum in magnitudine; et opposito modo sequitur de condensacione. Illud patet in paucioribus, ponendo quadrupunctale, si sit possibile incipere per totum rarefieri, cum hoc quod non incipiat rarefieri ad sui duplum; et patet iuxta communia principia adversancium quod hoc incipit esse maioris quantitatis quam prefuit, et cum non sit racio quare una medietas, quin per idem et quelibet, sequitur quod hoc incipit esse $2^{plum}$ ad illud quod prefuit: et eadem est racio de condensacione. Ex quo patet quod repugnat composicioni continui ex non quantis quod aliquid per tempus vere continuum rarefiat vel condensetur per totum, in adquirendo vel deperdendo continue quantitatem. Nec scit philosophus fundare casus calculatorios istius materie, in quibus quondam multum inaniter insudavi.

that is, it contradicts my system of composition of the Extended.

No philosophical argument has value against this theory.

*b)* Theological arguments. (1) Absolute (i. e. spiritual) forms can be coëxtended with matter; therefore, *a pari*, matter with matter. (2) Glorified bodies are coëxtended with the medium through which they pass. (3) Position, an absolute accident, might possibly exist by itself; if so, God might coëxtend two material substances in that space.

Sed pro fundacione parcium intensivarum materie, argumentatur theologice isto modo: forme absolute, tam substanciales, quam accidentales, possunt ad invicem cum materia coextendi, cum ergo idem sit iudicium de substanciis materialibus, eo quod forme huiusmodi poterunt per se esse, ergo per idem materie poterunt coextendi. $2^{a}$ consideracio est de glorificatis corporibus, que ponuntur sicut lumina cum medio coextendi. Et $3^{a}$ consideracio est quod situs aut locus, cum sit accidens absolutum, potest de dei omnipotencia per se esse; sicut conceditur de corporeitate et aliis quotlibet quantitatibus, que videntur magis a substancia dependere. | Cum tali ergo loco prius vacuo potest Deus B 122[a] coextendere substanciam vel quodlibet accidens sensibile, ex pari evidencia duas materias; cum repugnancia, si qua foret, oriretur ex impossibilitate coexistencie dimensionum in eodem situ illis adequato, vel ex duorum indivisibilium possibilium per se esse coextensa in eodem situ indivisibili.

An infidel logician would say that one absurdity here proves another: but Catholics must answer differently. Others say:

Ad ista diceret logicus cui non esset cura de creditis nostre legis, quod impossibiliter petitur antecedens pro alio impossibili inducendo. Sed quia necesse est totam fidem catholicam esse veram, ideo oportet professores huius fidei aliter respondere. Quidam autem dicunt

1. lince B. 4. ſit B. 24. 9ſi'o B. 26. 9ſi'o B.

quod assumpta, cum sunt supernaturalia vel miraculosa, non subiacent iudicio racionis; ideo est satis ipsa credere, nec oportet racionibus impugnantibus respondere, nisi forte responsione illa famosa wulgarium quod Deus, cum sit omnipotens, potest huiusmodi licet ignoremus misteria faciendi et subtilitatem obiectibus contrariis respondendi. Sed illud non placet michi, quia per idem posset poni opiniative quodlibet impossibile, si non dent expectari racionis iudicium, nec argumentorum oppositorum solucio.

We must not judge faith; we simply believe, and answer no objections drawn from faith. But I object to that, because any absurdity might be maintained thus.

Ideo, supponendo necessitatem fidei ac eius probabilitatem $2^{m}$ singulas eius partes, suppono 2° pro descripcione quid nominis, duas res situaliter coextendi quando per locum aliquem dimensionaliter pertendentur. Hoc enim sonat iste terminus *coextendi*. Ex quo patet quod quotlibet accidencia contingunt per idem subiectum situaliter coextendi. 3° dico quod minor primi argumenti est impossibilis, et radix multorum errorum infundabilis, si non fallor. Si enim materia aut forma substancialis. materialis, vel accidentalis, poterit per se esse, tunc haberet quelibet talis propriam dimensionem, locacionem, et cetera accidencia; vel omnis res foret substancia, vel esset necessarius processus in infinitum in generibus accidencium; ut alias diffuse arguam. Non ergo in infinitum rara est terra ad quemlibet terre punctum, nec suscipit substancia magis aut minus in sua essencia, que est forma. Et idem iudicium de quantitate, ubicacione et situ, que omnia oportet componi ex suis partibus intensivis, si per eundem situm possunt coextendi res omnino distincte, quarum quelibet pars minus potest esse sine coexistencia partis alterius; quia, hoc dato, forent huiusmodi accidencia coextensa; et cum sunt intrinsece presupposita ad accidens racionale, relinquitur quod qualitative aut intensive componunt ipsum; quod tamen superflueret, cum primum officium quantitatis vel loci sit quantificare; quod eque fieret, si non componeretur ex suis partibus intensivis. Inconveniens eciam videtur quod una pars intensiva numero sit actuata forma ignis, et alia forma terre; et

So admitting the necessity and reasonableness of faith, I take coextension to signify *the dimensional existence of two bodies in the same space;* and affirm that Argument (*t*) is impossible. Any substance or accident existing by itself must have its own dimensions and other accidents; so all would be substance, or we should have accidents *ad infinitum.* Earth is neither infinitely rare, nor can it become more or less so; and the same may be said of quantity, ubication, and position. They would have to be composed of intensive parts; quite unnecessarily, for they only exist to give dimensions. Nor can one intensive part of the same

5—7. licet—respondendi (sic) B. 23. ntiis *pro* necessarius; *very illegible* B.

20. *Materialis.* From here to f. 176, end of Logica, the MS. is written in a very bad, scrawling, flourishing hand.

be the form of water, and another the form of fire. According to that theory, all bodies would be equally dense.

sic de ceteris, quia materia dicitur relative ad materiatum. Ymmo, cum materia sit eadem essencia cum composito, sicud et forma, si essent 4 forma extense per eandem naturam, singulum illorum elementorum esset singulum; | et cum qualitas aut quantitas per se B 122b existentes haberent proprias densitates, per idem eciam in composito, et sic essent omnia corpora eque densa.

As for (2), it is more difficult to answer; we may suppose that the substance of the sky gives way on one side, so that the glorified body may pass. Some philosophers deny, but without proof, that any foreign body can be thus part of the sky, because the sky, being absolutely pure, is incondensible. A difficulty: nothing could be moved without a movement in the whole world; for every point, touching its neighbour, would cause it to change its place. But this is avoided by the circular movement of the points disturbed. When a stone falls, there is a circular movement of the air round it. So in the ascension of glorified bodies, the rapidity of movement of

Quo ad secundum, quod est michi plus difficile, potest dici tripliciter: primo, quod celum cedet medium sublimari, et sic corpus sublimatum ascenderet usque ad confinium mundi; tunc cedit a latere et non extumescit, propter nature regulam limitantem. Philosophi autem ponentes nullum corpus extraneum cum celestibus commisceri, ponunt nimirum quod celum non potest condensari vel rarefieri, sed fundamentum est falsum, licet inexpertum sit eius oppositum; nec videtur cessio celi plus repugnare nature quam cessio ignis vel aeris, cum talis cessio non arguit densitatem. Sed videtur generaliter quod nullum corpus potest moveri localiter, nisi ad omnem punctum mundi pars eius localiter moveretur; quia da quod non, et quod post quantitatem tocius mundi A punctus mutetur ad situm sibi inmediatum, cum hoc quod aliquis punctus maneat inmotus (et voco omnia puncta mota; oportet enim esse multa, cum nullum potest exspectare aliud in eodem situ proprio) videtur quod quodlibet expellet proximum, et sic non remanebit aliquid inexpulsum. Pro illo dicitur quod conclusio non sequitur. Nam motus circularis salvat illam instanciam; ut possibile est quemlibet punctum vasis vel loci dati circularis mutare situm suum, uno insequente reliquum circulariter, cum hoc quod non extra datum situm, quantum ad hoc pertinet, fiat motus. Et hinc credo quod ad motum rectum lapidis vel alterius concucientis causatur in medio tremor circularis, sicut in tribus elementis nostris et mixtis in eis concussis sensibiliter esset videre; et si non esset talis circulacio, moto uno localiter, omne corporeum moveretur. Nec est vis, quam celeriter circulus per totum moveatur, ut quod motus celi in tali ascensu

6. ꝑp'as B; *ib.* defi$^{tes}$ B. 11. subl̃uari B. 22. 9m$^{e\tilde{e}}$ = communitatem (?) B. 30. sanat B. 39. q̃ua B.

corporum perturbetur, quia est dare statum corporum quo ad motum. Nec sequitur motum astri perturbari in tali ascensu, licet ex quolibet motu recto sequitur circularis. Quando autem erit generalis assumpcio, stabit celum, quantum nos possumus sensu convincere. Nec repugnat quod sit talis motus circularis insensibilis, cum tamen delectabilis sit beatis. Secunda responsio dicit quod est dare quantitatem supranaturalem, a qua unum corpus erit penetrativum alterius, ut sint conformiter per eundem situm coextensa. Sed videtur michi quod illa opinio sit minus gravis, cum per idem posset qualitas disponi, ut sint quotlibet coextensa. Et stant B 123ª omnes raciones facte contra coextensiones | materiarum, corporum, vel formarum. Deus enim prebet unam talem materiam coextensam cum alia connectere, cum alia componendo, sicud et quamlibet partem quantitativam unius posset ponere cum parte alterius; quo facto, foret una composita intensive; et sic difformis tam substancialibus quam accidentalibus; potissime cum, ad composicionem quantitatis cum extensis suis terminis, sufficit inmediacio terminorum.

particles in this circle would not hinder any astral movements. And at the resurrection, the sky will no longer move, or will move insensibly. We may again suppose that one body may compenetrate another by a supernatural quality. But I do not approve of this answer, which admits the possibility of compenetration, and is open to all the arguments against it.

Tercia via dicit quod omne corpus plene sublimatum potest penetrare corpus celeste vel aliud dyametraliter sine hoc quod continens sibi cedat. Verumtamen, in tali penetracione est novi situs generacio utrobique, cum utrumque occupat sibi proprium, sicud sunt incommunicancia quantitate. Sed illud videtur difficile propter tria. Primo, quod non videtur racio quare Deus posset spissius ponere in parte superiori mundi corpora sic locata, cum hoc quod mundi convexitas sit immota, quin per idem potest ponere quodlibet corpora loco corporum sublimatorum, et alibi, stante quantitate mundi equali continue; et tunc nullum oportet ponere vacuum vel situs noviter generatos ex motu recto. Et per idem mundus posset recte pelli, generando situs consequentes ad motum. Secundum videtur mirabile quod aliquod punctum potest noviter poni distancius ad polum quam ponitur idem punctum, et aliquod punctum potest poni propius, sed nullum precise eque prope. Nam si precise eque prope, per idem potest poni corpus in toto conformiter ad tria posicionis principia; et per consequens adequate in eodem loco: quod repugnat poni. Tercio

Or we may finally say that a glorified body can penetrate any other body, without its giving way, because, having a new mode of being that does not come in contact with the sky, there is produced a different site for it. But *first*, if a glorified body can pass on to the outside of the heavenly sphere, why not other bodies that are not glorified? This would bring other difficulties to the front. Again, how can one point be nearer to the pole than itself, or farther from it, but no two points equally near?

12. desponere B. 13. extensiones B. 23. dyametrum B. 39. precipue *after* si B.

And how can a point pass between two others that touch, without having any relation with them?

videtur mirabile quod unus punctus potest interseri inter quecunque duo puncta, nisi ex aggregato, posita una linea, una constitui, et per consequens linea manens recta continue posicionem, cum hoc quantumlibet licet crescere, secante utroque extremo eius fixo. Et sic de supposicione aut corporeitate, ut superius tactum est.

These questions I leave to be answered by theologians, merely stating that there is nothing against faith or truth in my doctrine.

Et tunc videntur parare demonstraciones geometrice de figuris. Scio tamen quod dicendum esset figuras dissolvi ex tali cremento quantitatis, novis sitibus generatis, licet sensus non sufficiat ita discernere. Distinccionem illius materie relinquo theologis, hoc asserens, quod nulla pars fidei, nec verum aliquid, opponitur isti vie.

*c)* I consider it an indubitable fact that the elements remain in the compound.

3$^{um}$ argumentum claudicat, sicud et primum. Quantum ad existenciam elementorum in mixtis videtur michi indubie ipsam oportere concedere. Nam Aristoteles,

According to Aristotle, a compound implies alteration and union, not destruction and production, as generation does.

primo de generacione, ca$^{o}$ de mixtione, movet dubium in terminis; et tenens affirmativam partem, dicit quod diffinicione | *mixtio est miscibilium alteratorum unio;* B 123$^{b}$ ideo differt a generacione vel corrupcione, ubi alterum corrumpitur et reliquum generatur. Differt eciam ab augmentacione, ubi alimentum assimilatur aucto conservanti suam speciem vel naturam in actu. Differt ab alteracione, cum oportet utrumque mixtorum esse substanciam per se separabilem a reliquo, quod non potest competere quantitati. Unde tria requiruntur ad ydoneitatem miscibilium; primo quod sint bene minutim separabilia, ut sunt liquida et corpuscula terrea. Unde in lapidibus, metallis et omnibus mixtis perfecti novit subtilis experimentator quando componuntur ex minuciis terrestribus, aliis humidis interceptis. Secundo requiritur contra contrarietas vel repugnancia mixtorum; quia aliter non resultarent forme superaddite pocius quam in puris, nisi quadam armonica complexione disposicio ex contrariis resultaret. Et tercio oportet commixta esse proporcionabilia in multitudine, ut gutta aque propter paucitatem suarum parcium non proprie

Three things are required for a compound: that its elements should be in a state of fine division, that their qualities should be to some extent conflicting with each other, and that there should be a certain quantitative proportion between them.

2—5. quecunque—extremo (sic!) B. 10. fp$^{us}$ *pro* sensus; *and so on* B. 18. vino B.

19. *Differt a generacione.* I have all along understood *generatio* by 'combination', and also *mixtio.* But the ancients often included under the latter name what we should call mechanical mixtures. Wine and water was a 'mixtio'; but so was also gold and quicksilver. They only spoke of generation, when there seemed clearly to be a new substance produced.

commiscetur cum dolio vini; et proporcionabiliter de aliis est dicendum.

In via itaque generacionis mixti conveniunt omnes proporcionabiliter sapientes illam materiam, 4 elementa secundum partes miscibiles commisceri. Sed iuxta modum loquendi philosophi negant illa elementa manere in actu, dum forma superaddita est inducta; quod latum est a variis opinantibus, et terminative intellectum. Comentator autem ponit formas substanciales elementares intendi et remitti in sua essencia, cum fuerit media inter substancias et accidencia, et sic manere in *esse* remisso incompleto cum formis contrariis. Et illud vocat commentator esse in potencia. Patet ista posicio 3° de celo 69.

All admit that the four elements are mingled together in the compound; and most of them, taking Aristotle literally, deny that they exist actually after combination, while Averrhoës says that they remain with less intensity of being.

Sed hoc videtur michi impossibile propter tria: primo, quia substancialis, vel essencia que est forma substancialis, non suscipit magis et minus pocius de substanciis elementaribus quam de mixtis; ut sicut nichil est reliquo magis homo, sic nec aliquid est reliquo magis ignis. Nulla ergo igneitas est reliqua plus intensa. Secundo videtur innuere quod in mixtis sunt forme contrarie coextense, et per consequens tam materie quam qualitates; et tunc nullum continuum componitur ex non quantis. Patet deducio ex hoc quod infinitum remissa foret forma tam substancialis quam accidentalis ad quemcunque punctum elementi; et per consequens in infinitum foret remissa substancia tali forma, et non totum quod est tota essencia materie. Ergo relinquetur quod pars eius qualificativa. Non enim stat quod illud subiectum primo simul recipiat formas contrarias, sicut patet de racione contrarietatis. Tunc B 124ª enim simul | haberet denominaciones contrarias, cum quelibet forma, ut huiusmodi, informat informancia appropriata ut, si est caliditas, tunc est aliquid illa calidum. Et sic de qualibet forma substanciali vel accidentali, ut patet de quibuslibet earum, cum quelibet forma sit subiectum vel essencialiter vel accidentaliter formaliter se habere. Et tercio videtur quod 4 elementa contraria, que communicant in eadem materia in numero, constituunt aliam substanciam: una quoque foret inmediata materia forme superaddite, et foret formarum

The latter position seems impossible, 1. because no essence can have more or less intensity; nothing is more or less man, more or less fire.

2. Averrhoës seems to believe that in the compound, contrary forms compenetrate each other; which is contrary to our system of inextended points. In every point the form would be infinitely weak, and the resulting substance would be so too.

3. The elements would become the matter of the resulting form, and would thus be identified with one another.

5. niſſibles B. 7. latum B. 8. t'te (?) r'te B. 16. fubalis (sic!) B. 18. elementariis B. 34. calliditas B. 35. callidum B. 40. una que B.

et materiarum processus in infinitum, et ydemptificacio elementorum, cum communicant in eadem materia vel essencia singulari. Sequitur enim, ut supra tangitur: *ista materia est de essencia huius ignis* (et sic de tribus reliquis elementis): *ergo singulum est singulum eorundem.* Nec evitabitur quin quelibet pars quantitativa unius elementi huius continuatur cum alia parte quantitativa alterius.

Modern philosophers think that the elements themselves do not remain actually, but say that their dispositions and qualities do.

Secunda est via posterius philosophancium qui ponunt nullum elementum actualiter esse in mixto. Sed quotquot auctores et raciones ad hoc sonuerunt, omnes sentenciant quod disposiciones et qualitates, quales secundum speciem nate sunt consequi elementa, relinquuntur in mixtis: quod, cum sit verum, non arguit quod elementum aliquod sit in mixto actualiter. Contra istam sentenciam videtur descripcionem termini militare. Nam elementum, ut huiusmodi, est causa intrinseca rei, nec pars qualitativa, ut exponit comentator, primo phisicorum et 3 de celo 6. 9. Aliter enim diceretur celum eque elementum sicud aliquod corporum 4 simplicium sublunarium; nec congrue vocaretur lapis aut lignum corpus mixtum, cum habeant materiam primam et formam simpliciorem quam aliquod elementum. Si enim non sit aliquod mixtum, est dare illa ex quibus misceretur. Corpus igitur hominis non misceretur, nisi forte ex anima indivisibili et partibus materie prime; et sic materia prima foret caro, os, nervus, etc. ut alias diffuse prosecutus sum. Ymmo terra pura, vel aliquod elementum, quamtumlibet modice alteratum, foret corpus mixtum, et composicius quam aliqua pars quantitativa hominis: quod et componeretur ex materia hominis et forma, et haberet qualitates contrarias, quales secundum speciem nate sunt consequi elementa. Et utrobique est generacio reciproca. Nulla ergo foret causa nisi ficta simplicitas talis corporis supra carnem. Et cum caro, os, nervus, sunt eiusdem speciei specialissime, quia quodlibet illorum materia prima sine forma substanciali formaliter componente, sequitur quod totum corpus hominis, quod est composicius inter mixta, sit simplicius elemento.

But 1rst, this is contrary to the definition of an element, which must be the intrinsic cause of the compound, and not merely a qualitative part of it.

The first sphere, as a cause non-existent in the compound, would be one of its elements; a stone would have matter and form alone, both simpler than any element.

The human body would be composed only of primal matter and an indivisible soul;

And thus the human body, so complicated in all its parts, would be simpler than an element.

13. fui ffem B. 14. sit cum vm' B 21. sublunari B. 27. v'mis = vermis B. 35. non B. 36. u'uus B.

2° principaliter experiencia phisica videtur repugnare. Nam tam arte quam natura cognoscitur ex partibus
B 124ª mixtorum elementa | dispariter resultare, ut in dissolucionibus lapidum, calcancionibus metallorum, et breviter de vitro vel quocunque omogenio, quantumlibet fortiter commixto contingit partem subtilem aqueum vel aereum extrahi, semulento croceo derelicto; et longe facilius in vino, sanguine vel alio distillabili omogenee. Et idem docet natura patere nobis de carne vel de quocunque putrefactibili omogeneo, quod iuxta regulam Aristotelis humo putrescit; quod humidum unctuosum, relinquendo incineratum terreum, petit partes extremos quousque maior pars aerei vel ignei expiret, propter vim movendi et convenienciam ad locum debitum ex natura, sicud in sensibus innominatis; ut quercu putrida et similibus est videre. Talia enim, scilicet per subtile aereum et igneum ad circumferenciam exsudatum splendescunt in noctibus, cum naturale sit ex talibus luminosum fieri, quod se ostendit in absencia splendidi forcioris: ut in oculis catticis, squamis piscium, quibusdam vermibus, et in omnibus conformiter proporcionatis in partibus superficialibus in tenebris est videre. Cum enim ex contingencia equali nunquam fit accio, patet quod terreum derelictum et igneum exalatum etc. in mixto fuerit disparium naturarum, cum oportet *esse* per se motum habere intrinsecus motorem in actu, preter formam accidentalem. Et idem patet ex elaboracionibus olei de minutis seminibus et de lapidibus silicinis. Et idem patet de fructibus, floribus, et quotlibet similibus que sunt in partibus superficialibus et intrinsecis: multum dispariter sapiunt, odorant, et specialiter colorantur.

2nd; it is against experience. We *get* the elements out o the compound; so they were in them, as is seen in chemical and metallurgical processes; we see fire proceeding from putrefying flesh or fish, in the darkness; it comes out of the eyes of cats, &c. No action can take place without an efficient cause; the appearance of this fire must, therefore, have a cause which is not a mere accident. Many other instances of like nature might be adduced.

Sed quo ad isto conceditur quod in talibus mixtis est dare partes quantificativas dispares, sed omnes eiusdem nature quo ad formam superadditam, licet in

3rd. But as they reply that there are quantitative parts that differ in the compound, one being

4. calcaconibꝫ B. 15. ff,bus B. 16. fp B. 20. cattis B. 24. delictū B. 29. q,lꝫ B.

1. This is the same argument as was lately used (though with all the superiority given by recent chemical discoveries) by those philosophers who maintain the existence of atoms against the revival of the 'Matter and Form' doctrine in the Neo-Scholastic system. The idea is the very same. "We *get* oxygen and hydrogen out of water, therefore they were there before." The reply is: "Actually, no; potentially, yes!" 7. *Semulento.* Probably derived from *semolla*, bran.

more similar to one elements, others to others, but all having the same form and compound nature: we argue thus: Each element existed separately before combination, and still remains in its essence; therefore no new forms can possibly result from it; or if they do, they will be of a very different nature from the compound. If the action of one simple body on another can bring a new form into being, it must be very different from either.

qualitatibus una quo ad unum elementum, et alia ad aliud, plus accedat; quia aliter non esset racio quare carbo, lignum, et talia combustibilia secundum aliquam partem resolvuntur in cineres, et secundum aliam inflammantur. Contra illud 3° argumentatur. Signo totam multitudinem per C et totam multitudinem per D, que 4$^{or}$ dicit adversarius corrumpi in adventu forme superaddite. Et argumentatur sic: quodlibet istorum 4$^{or}$ fuit continue seorsum in loco per se sibi proprio, purum a commixtione cum contrario pereundum, et ad- huc manet quo ad | essenciam, vel remissum paululum B 125$^{a}$ in qualitatibus, vel ipsis servatis integris sicud prius. Ergo per nullum eorum superducitur forma superaddita; vel si inducunter hec quatuor, habebunt formas superadditas disparium naturarum. Consequencia videtur ex hoc quod ex pari evidencia, in quodlibet simplex conformiter altera tunc induceretur forma supperaddita consimilis racionis; et per consequens, ex quocunque simplici contingit per accionem alterius simplicis sine commixtione quamlibet formam superadditam resultare; et, ut videtur michi, in quotlibet istorum quatuor induceretur forma superaddita alterius racionis, cum sit subiectum alterius composicionis, sicud fuit inmediate ante induccionem; et proporcionaliter ad materiam datur forma.

Additional proof: qualities that were at first in the elements are now in the compound; as no accident passes from subject to subject, they are in the elements still. It is no use saying that new qualities are produced and the old ones destroyed, why should they be destroyed?

Confirmatur tripliciter primo sic: inpossibile est qualitatem vel accidens quodcunque transmutari de subiecto in subiectum; sed qualitates prime, que iam sunt in mixtis, condam et fuerunt in simplicibus: ergo ad huc remanent in eisdem. Sic enim sonant quelibet dicta philosophorum quod nullum mixtum est calidum aut frigidum, nisi participacione simplicis cui primo competit esse tale. Nec valet dicere quod tot et tante qualitates prime subito generantur, aliis subito corruptis in comitacione forme superaddite; quia non est dare contrarium a quo debeant corrumpi, cum possunt manere in mixtis, nec efficiens, a quo tot et tante subito generentur. Nec superest racio quare forent qualitates prime, quare possunt inesse in mixtis quibuslibet; quia sunt corpora simplicissima sine ordine

5—7. 3°—4$^{or}$ (sic!) B. 8. sunt *pro* super B. 10. peund, B. 23. gonis B. 30. callidum *and very often after* B. 39. quod B.

6. *Totam.* Evidently some parts of the sentence are wanting here.

prioritatis respectu elementorem se habencia, stante sentencia huius vie. Confirmacio [2ª] est hec. Impossibile est qualitates contrarias coextendi; quod esset, stante illa sentencia: igitur, etc. Et maior patet ex hoc quod omnis qualitas est *subiectum esse quale*, cum non sit potens aliquid per se existere, sed unitate accidentis, cum aliis eiusdem racionis. Ex quo patet, si essent qualitates contrarie coextense, tunc vel nichil esset simul denominatum denominacionibus contrariis, vel [essent] materie coextense. Et patet minor, eo quod, si forme substanciales elementorum sint per totum mixtum, sequitur quod et qualitates; et tota contraria, multis modis contraria. Tercia confirmacio est ex impossibilitate reaccionis duorum elementorum simul et semel secundum easdem partes; ut, posito quod A ignis et B aqua purissima commisceantur in dato mixto, oportet partem A reducere partem B sibi inmediatam ad temperamentum in qualitatibus, et econtra; et per consequens, cum hoc non sit nisi per reduccionem qualitatis contrarie, sequitur quod idem subiectum secundum idem sit simul et semel agens et paciens, in actu et potencia respectu eiusdem. Prius ergo et principalius educeret qualitatem contrariam a se ipso, quam induceret post debilitatem potencie per B 125ᵇ qualitates instantaneas qualitates suas in corpus | extrinsecum. Ideo, ut alias diffuse ostenderam, reaccio non est simul tempore et secundum idem possibilis; ad quam oporteret qualitates contrarias simul, subito, et tempore reciproce generari, propter talia multa que naturales sciunt adducere. Credo 3ᵃᵐ sentenciam in hac parte; scilicet, quod elementa sunt realiter in mixto secundum situs et formas proprias, ut dicit Avicenna, primo causarum, caº 3º, et alibi multis locis.

Sed contra ista instatur tripliciter. Primo, videtur quod proprie non sit mixtio, sed iuxtaposicio corpusculorum; quod sic, habens occulos linceos videret quomodo quodlibet elementum foret seorsum positum; et sic per idem homines et omnia genera corporeum essent commixta in mundo, et nulla foret forma substancialis superaddita, cum nullum mixtum foret vere

Contrary qualities (i. e. those that remain of the elements when these are no more) cannot coëxist in the same subject, and cannot exist separately; now the non-remanence of the elements implies this.

Two elements cannot at the same instant act and react on each other. But in combination, the element A would have to neutralize a quality of the element B; which it could not do unless it lost as much of its own contrary quality; so it would be at the same time and in the same point of view, both active and passive.

Reaction must take place *after* action.

My position is that of Avicenna: the elements exist really in the compound, in their own forms and places.

*Arguments contra:*

I. This would be no compound but an aggregate of atoms; we could, had we eyes good enough, discern every element apart; men, animals, all would be

2. 2ª *deest* B. 3. g̃ritas B. 6. accus B. 10. essent *deest*. 16. p'usſuma B; *ib.* ſuma? B. 29. recipe B. 33. Caſ, B. 35. ıxpo B.

mixed up, and there would be no superadded form to distinguish them. It is false. The aggregate of atoms is the compound itself. We cannot see how they are placed, but God does, and the mind knows in general that the essence of the compound depends upon their position. Men and all things are indeed mixed with one another; but they are distinguished by their proper substantial form.

aliquod unum. Ad illud negatur prima consequencia, cum iuxtaposicio corpusculorum, ceteris requisitis, constituunt vere mixtum, cum omnes vere loquentes de mixtione oportet concedere vel corpora parva, vel materias corporum, iuxtaponi, et per formam superadditam continuari. Licet autem nullus oculus corporalis sufficit cognoscere appropriatos situs corporum commixtorum; Deus autem distinctissime, et intellectus humanus confuse cognoscit posicionem in quolibet mixto perfeccius huiusmodi situs dari. Et sic conceditur homines commisceri ad invicem cum aliis, et proporcionaliter de ceteris partibus huius mundi, sed non ad finem quod forma substancialis resultet constituens mixtum substanciale disparis speciei; et solum tale mixtum ad propositum est naturale cuius quelibet pars quantitativa in actu, que potest per se existere sub tali specie vel per se sentiri: quod philosophi secundum gradum minimum vocant minimum naturale. Nec obest materiam formatam suscipere super illam formam superadditam disparis racionis.

II. The superadded form cannot exist at any point of the compound, (since the elemental forms are everywhere); it is therefore nowhere. We reply that as substantial forms are more elevated above matter, they are less subject to material conditions.

2° videtur quod ad omnem punctum materie mixte non sit forma superaddita, et per consequens cum per totum sit eius privacio, sequitur quod nusquam sit talis forma; quia nec indivisibilis, nec extensa. Ad illud dictum est superius, quod forme substanciales, ut a materia elevaciores, sic sunt a condicionibus materie remociores; ut forma corporeitatis vel forma elementaris secundum aliquos est situaliter secundum partes punctuales materie; et quelibet forma materialis superaddita determinat sibi certam multitudinem elementorum constituencium minimum naturale; et sic gradatim ascendendo quousque deveniatur ad animam hominis, que est finis formarum de quibus considerat philosophus naturalis, ut patet 2° phisicorum. Nec extenditur minima forma per subiectum suum primarium, sed est ad quemlibet eius punctum indivisibiliter quo ad molem; et quotlibet tales indivisibiles constituunt formam superadditam mole magnam: Et sequitur quod tota sit ad omnem | punctum sui subiecti primi secundum aliquam B 126a sui partem. Et patet quod falsum assumitur, cum quelibet forma substancialis cuius partes quantitative distant situaliter extenditur modo suo. Nec oportet quamlibet

Each form is indivisibly in the whole of its subject, but partially so.

27. vel forma *twice*. 34—35. una B. 38—39. ad omnem *twice* B.

partem quantitativam subiecti habere appropriate partem quantificativam forme, sicud forme anulosorum extenduntur. Si partes sue quantitative sint animalia anulosa (et sic de bestiis; si multe quantitative unam constituant) forma totalis extenditur modo suo. Ymmo, si duo homines unum hominem quantitative constituunt, forma totalis extenditur sine alia sui parte divisibili vel extensa.

Sometimes each quantifying part of the form answers to a quantified part of the subject, as in the Annulosa, or where many animals are united together in one whole.

Nec sequitur ex istis quod mixtum solum ligatorie vel aggregative sit unum, ut cumulus lapidum, domus, vel populus; quia ex commixtione propria et perfecta resultat quedam forma substancialis et perfecta specifica; non sic autem de aliis artificialiter aggregatis. In hoc tamen conveniunt quod, sicut impossibile est mixtum perfecte poni in specie sine forma substanciali a qua habeat quantitatem, sic impossibile est populum, domum, vel aggregatum quodlibet esse unum, nisi sit forma artificialis vel alia accidentalis in aggregato huiusmodi, a qua accipiat esse unum, ut populus supra multitudinem dicit consensum hominum, ut obediant uni legi. Et domus dicit figuram aggregatam ex posicionibus suarum parcium, ut defendat hominem ab intemporaneis nocumentis. Et sic de ceteris, cum omnis unitas sit a forma. Et sicud forma substancialis mixti est per totum subiectum, licet non extenditur nisi per subiectum homogeneum suo toti; sic forma aggregata taliter accidentalis aggregati est per totum suum subiectum. Et de possibili non habet aliquam partem consimilis racionis; sed sicut forma mixti est causaliter in elemento per quod non extenditur, sic et forma aggregati est in quotlibet partibus eiusdem, que habent appropriatas habitudines ex quibus resultat forma totalis longe disparis speciei. Nec est vis, sive vocentur eius partes, sive forme presupposite ad totalem formam. Unde similiter intelligendo talia aggregata, concedi debet quod proporcionaliter dissolvuntur ut mixta, ex dissolucione vel deficiencia sue forme.

There is a great difference between a mere aggregate and a compound. The mixture is so perfect that it brings into being a new substantial form. They resemble each other in that in both cases there is a form — here natural, there artificial. A nation implies the form of authority; a house, the proper disposition of parts in order to give shelter, &c. And in both cases, the form is everywhere in the subject, but without extension.

9. legacor̄ B. 10. anulg B. 11. que quia B. 16. Et *pro* sic B. 23. ītpaeis B.

2. *Anulosorum.* It was formerly a great difficulty for philosophers to explain how the one indivisible principle of sensation can be multiplied by scission, as it is in certain of the Annulosa.

III. According to this, there would be only one being in the world; since everything would form one whole with the surrounding medium.

3° videtur quod omne mixtum sit continuum cum medio continuante; et per consequens nullum corpus mundi est ens in actu, sed solum potencia; et sic nulla foret continuacio, cum quantumlibet disparia corpora in quantum inmediate sunt posita, sunt adunata. Ad illud dicitur, concedendo quod omnis pars mundi corporea continuatur cum alia, cum alias non esset mundus una substancia corporea, sumens ut quoddam totum omnem naturam corpoream parcialem; quod est falsum, cum mundus sit maxima creatura | possibilis, mole B 126b magna, circulata, constans ex omni materia possibili, subiecta situi et tempori, et multis aliis accidentibus, gracia cuius perficiende sunt omnes parciales substancie, ut noverunt philosophi, et supponitur in presenti. Mixtum ergo, in quocunque elemento sit positum, trahet quotlibet partes eiusdem speciei ad sui circumferenciam, et per consequens inmediatas medio continuati; secundum tales continuatur cum medio; ut aer, respiratus a pulmone et corde, continuatur cum spiritibus aeris; et per consequens, cum toto cuius illi spiritus sunt partes precipue. Et indubie aer respiratus continuatur cum medio continuante, quia in aqua, igne vel aere, non potest exspectare successivam accionem per quam ipsa per tempus inmediate posita in fine primo continuantur secundum aliud; ut aliqui, volentes continuacionem esse rem absolutam que per se possit existere, false fingunt. Et sic indubie esset de terra, nisi partes aque vel aeris intercise facerent partes distare ab invicem; et hinc mixtum terreum, post exalacionem vel evaporacionem elementorum continuanciam, decidit in pulverem; et partes pulveris de possibili inmediate constituunt unum corpus; licet continuacio non sufficit ut una pars ad quemcunque recessum alique insensibiliter insequatur. Contingit eciam in casu, pro supplecione pleni, virtute continuacionis, quantumlibet grave sequi aliud inmediatum amotum, etsi fuerit disparis speciei; quod nunquam contingeret, nisi esset quedam continuacio sic motorum.

Those parts of a compound which are of the same kind as the surrounding medium, form a continuity with that medium, as for instance the air expired from the lungs

Continuity requires a medium, and is not a thing that can exist by itself.

The terrestrial parts of a compound are not continuous, because separated by particles of earth and of water; which, when evaporated, only dust remains.

Sometimes, to avoid a vacuum, one heavy body when moved draws another after it.

Continuity, says Aristotle, consists in the

Unde, ex influencia veritatis, motus fuit Aristoteles 5° phisicorum (forsitan ignoranter) ad ponendum con-

15. t̄ḡ B. 17. ǫti$^{tt}$ B. 26. f$^{2}$gunt B. 31. p̄lur's B. 33. c'teſſum B. 34. cum *pro* conſingit B.

34. *Pleni.* Probably an allusion to the rising of water in a pump.

tinua descriptive talia: *quorum ultima sunt unum;* ut duo puncta inmediate posita nunquam huiusmodi constituunt quoddam unum, quod est terminus communis utrique, communicancium parcialiter in eodem. Unde conceditur quod quelibet quantitativa corporeitas est in potencia, non tamen distinguendo potenciam contra actum. Et sic omnia corpora que non sunt continuata cum corporibus eiusdem speciei constituunt numerum actualem. Et continuacio talium cum corporibus disparis speciei, adnascencia vel contiguacio nominatur. Ex quo patet quod hec duo, continuacio et contiguacio, non sunt species distincte ex opposito, sed pocius continuacio est genus utriusque. Contigua enim sunt quecunque se tangencia disparis speciei, quorum ultima sunt simul. Et si sunt corpora disparis speciei, confixa per humidum continuans ad $3^{m}$ integrandum, tunc sunt ad hoc nata, ut os, cartilago, nervus et cetera, et omnia genera concurrencia ad integracionem corporis animalis.

limits of two things being identical; but two points that merely touch are not identical. We may grant that all bodies are *potential* (without denying their *actuality)* because they are more or less separated from others of the same kind; the fact of their touching bodies of a different kind is called *contiguity,* which is a sort of continuity, and does not differ from it in a metaphysical sense.

B 127ᵃ Ideo vere dicit | commentator quod in methaphysicis non differt contiguacio a continuacione, cum eo ipso quod ultima linearum superficierum corporum, sunt simul unum continuum; et econtra.

Ulterius notandum est iuvamen elementorum in mixtis, ad constitucionem et perfeccionem sui compositi. Oportet autem in omni mixto perfecto terram quo ad multitudinem dominari, propter mixti constanciam. Nec aliter esset iuvatum efficienter sensus tactus. Unde, secundum analogiam, ad suum sensibile fundatur sensus tactus plus necessarius aliis in nervo retili terreo, ceteris sensibilibus plus extense. Oportet secundo inesse naturam aqueam ad multitudinem terrenam, forcius colliniendam terream, et ad stabiliendum in homine sensum gustus, quem oportet fundare in humore aqueo, nedum quoad linguam et partes pororum extensius adiacentes. Sed e converso quo ad gustale quod oportet omne humidum aqueum, si gustum debeant proporcionaliter mutare, et genera talium obiectorum sensus distingwere, ut sensitum per habens sensus huiusmodi, nedum quo ad noticiam, sed eciam ad *esse*. Et omnia talia sunt ordinata ad hominem ut ad finem. Ideo non impertinenter reducitur causa mixtionis elementorum in

The elements concur actively to give perfection to their compounds. Earth gives stability and palpability, and must predominate in every perfect compound; it is the basis of touch.

Water joins the particles of earth, and is necessary to the sense of taste in man.

All things are made for man, and the reason of all compounds which are

1. motus quorum B. 6. ꝑpoita B; *ib.* ponam B. 18. genia B
23. Iuvam̃e B. 29. aliter B; *ib.* r'tili B. 38. ſpvus B.

inferior to man is to be found in him. Air must be present; otherwise the compound would not be sensible to the undulations which cause sound in the air, and move the cavity of the internal ear where the auditive faculty is situated. Fire is necessary to the animal spirits, that they may perceive light and colours. There is more fire in the eye than in any other part of the body. Nothing leaves the eye to strike the object, nor can the eye see without something visible, in regard to which it is passive, though active in other ways.

mixtis remotis sub homine ad hominem, gracia cuius taliter commiscentur. Oportet tercio aerem commisceri, quia aliter non esset mixtum tale sonorum, dilatans se post percussionem, nunc secundum dyametrum longitudinalem, et nunc secundum latitudinem, ad tractum spiritus aerei complantati corpora, causando secundum numerum tremulosum ex dilatacione et constriccione secundum dyametros transversatiles, sonum in aere proporcionaliter continente, qui eciam moveret connaturalem et complantatum aerum in miringa. In tali namque mixto aere complantato, et non in aere alieno contento in spongiosioribus, subiectatur vis anime auditiva. Ignis autem clarificat spiritus alienos, et facit proporciones, ad colores iuvans ut sue speciei cum irradicacione luminis extranei per medium dyafanum sensibiliter differenciuntur. Unde in spiritibus animalibus qui subiectant virtutem visivam, ignis plurimum dominatur in proporcione admixta alia; ut ex claritate cristalaydis, cum tunicis sufficienter illuminatis in suis superficiebus, et species libere inserantur, et lumen oculi cum virtute visiva commisceatur cum specie visibilis in medio e converso, usque ad solidum terminans visionem. Non autem egreditur corpus ab oculo ad terminum; nec sufficit hec multitudo ocularis sine coexistencia speciei visibilis obiecti, a quo organum, recipiens speciem, specialiter paciatur. Unde passionem visus declarat Aristoteles | in De sensu et sensato et 2° B 127b De anima. Accionem vero sensus ponit, 19 De animalibus et 3° Metaphysicorum.

Natural philosophers tell us that earth predominates in ores and stones; water in metals; inflammable air

Alie autem sunt quotlibet commoditates in existencia elementorum in mixtis; quorum tractatus ulterior pertinet naturali, qui ponit inter mixta perfecta terrea habundancius dominata; ut in minera, vel lapide; 2° aquam, quo ad opus liquacionis dominari generaliter in metallis; 3° unctuosum aerem, qui est causa inflammabilitatis, ponit in vegetali quo ad illud effectum

7. cõfac'one B. 14. fue ſſcũ B. 24. m̃lti° B. 30. existencie B. 33. lapide vel B. 34. loq̃conis B.

35. *Unctuosum aerem.* I have rendered this in the note by inflammable air, which was one of the first names given to hydrogen; an element that is really abundant in plants, as is well known.

dominari; quarto aerem puriorem in sensibus, specialiter quo ad spiritus aminales; et quinto ignem habundancius in homine, propter maiorem copiam istorum spirituum, et alias operaciones ad quas natura ornat intentum. Et sic et species et genera mixtorum, quecunque genera corporum simplicium in maiori mundo proporcionaliter coaptantur. Nec tollit tale dominium aliorum elementorum super terram ampliorem terre multitudinem, vel dominium terre quo ad aliqua super illa; sed satis est quod unum elementum quo ad aliquid super reliquum dominetur, et quod mixta totaliter perfeccioribus formis substancia, habet plus proporcionaler de superioribus elementis. Conferat ergo protervus textum Aristotelis alio, mediate in fine, cum dictis eius, primo De generacione, 4° Methaphysicorum, et alibi ad significacionem debitam, et videbit quod nullum dictum philosophicum sit obvium huic vie. Causa precipua quare illa via abhorretur a pluribus est quod non per sensum percipiunt adcomposicionem continui ex non quantis.

in vegetables, to render them combustible; a purer air constitutes the animal spirits and fire is abundant in man. Each element predominates somewhere for some special purpose. If Aristotle's words on the subject be properly examined, he will be found in agreement with us.

Tercio et ultimo restat videre de velocitate motuum quo ad signum penes quid attendi debeant. Et primo de motu locali. In qua materia recordati sunt moderni quod non attenditur penes magnitudinem situs corporei acquisiti in corporacione, ad tempus; quia stat aliquid subito acquirere vel deperdere talem situm per adnascenciam vel discontinuacionem. Stat eciam columpnam rotundam, 2 pedum in longitudine, et 8 pedum in latitudine, sicud hasta est, descendendo uniformiter in hora, describere in hora situm secundum longitudinem duplum ad hastam; et aliam simillimam in figura volvi latitudinaliter precise eque velociter, describendo situaliter plus quam octogintopliciter ad priorem, sicut patet calculanti: ubi certum est quod quolibet punctus unius precise eque velociter movetur, sicud aliquis punctus alterius. Non ergo esset possibile aliquod corpus moveri uniformiter quo ad subiectum, supposita illa tria repugnancia.

Question III. *What is the measure of the velocity of any motion?* It is certainly not the space covered by the mobile in a given time. Two cylinders of the same size are moved with the same rapidity, one parallel to its diameter, the other parallel to its length: if the length be to the diameter as 2 to 8, the space covered will be eighty times greater.

2. Exo͡mto B. 5. ga B. 11. totalia B. 21. Io͡ B. 33. octogincopl͡r B. 38. ta' B.

33. *Octogintopliciter*. As I understand the case, the difference would not be so great; only as 16 to 64. But I cannot help thinking that the marginal note renders Wyclif's meaning.

It is generally and rightly believed that in every mobile there is a point that moves swiftest of all, and measures its motion. This implies the existence of points, having distinct degrees of movement.

Ideo dicitur communiter et bene quod in omni corpore mota localiter est dare punctale velocissime motum, quod est mensura velocitatis tocius motus, | cum B 128a omne motum tam velociter movetur sicud aliqua pars sui; et sic patet quod sequitur ex illo punctum, lineam, et superficiem esse et motus sibi proprios, et per idem situs et alia accidencia. Ut, posito quod latitudo alteracionis et eciam motus localis uniformiter, et difformiter a non gradu usque ad gradum ut $4^{or}$, extendetur per B corpus: est dare gradum intensissimum motus alteracionis, sicut et motus localis, qui gradus solum est ad extremam superficiem totaliter; sicut et qualitas sic intensa sicut est color vel lumen solum per superficiem corporis spacii, quod luminosum transpicit solum secundum talem superficiem totaliter et primo. Aliter enim ageret color intrinsecum quantumcunque parvus per medium opacum, cum sit dare primum agens, sicut et nisum [et] difficultatem quam produxit ad maximum. In omni ergo corporeo moto, pars naturalis primo mota est punctale.

The degree of intensity of movement is only complete at the surface of the body, as colour is also only at the surface.

There is also a point of minimum movement in every being that moves itself; as in sensitive movement one faculty moves another and is moved by another.

Et preter hoc est dare minimum naturale in quomodocunque per se moto; quod minimum non potest moveri secundum partem reliquam respectu opposite quiescentis; ut in motu animalis obiectum movet sensus extrinsecos et intrinsecos; at illi movent appetitum sensitivum; et ille movet virtutem secundum locum motivam, et illa calorem vel humiditatem quod in musculis et lacertis; et forte in corde est minimus calor primo motus, quamvis quelibet pars animalis iuvet reliquam quamlibet ad agendum, sicut quelibet pars mundi iuvat quamlibet aliam. Et per consequens homo variatur qualibet parte mundi. Sicud enim cumulus silve vel arene ostendit se, quantumlibet distanter, per communicacionem parcium, sic tota terra (et per idem totus mundus) ostendit se per communicacionem parcium. Nam si quelibet pars iuvat reliquam ad integrandum suum totum, quod et equivalent finaliter per quamlibet partem materialiter communicantem, sequitur quod quelibet pars coadunat reliquam et suum totum ad omnem posterius esse causatum.

Every part helps another as one part of the world aids the movement of another, and thus of the whole world.

8. difformis B. 17. et *after* nisum *deest* B. 22. quod non B.
27. huo$^{to}$ (?) B. 24. quiescente B. 28. mistulis B. 37. equivocant B.

Parum tamen locutum est de illo colore vel colorato, quod primo appropriate agit speciem et terminat distanciam visionum. Non enim oportet, si unum iuvans agit, quod coagit cum eodem. Nec oportet, si hoc sentitur vel noscitur a noscente, quod distincte sentitur vel noscitur ab eodem. Sed hoc forte evenit ex dicta communicacione parcium universi, quod quelibet eius partem apprehendendo, apprehenditur ipsum totum intencione confusa; et ipso confuse apprehenso, apprehenditur eius quelibet pars; ymmo primum principium, quod omnia appetunt, ad minimum confuse.

Remark respecting colours, how they act to aid vision.

Sed reliquendo hoc, ut hic inpertinens, alibi pertractandum, prosequendum est de mensura velocitatis motuum. Sunt ergo duo modi dicendi in materia de velocitate motus localis. Nam aliqui dicunt quod attenditur penes lineam descriptam a puncto velocitate motus. Contra quod 4$^{er}$ argumentatur. Primo ex hoc quod omnia puncta mota in ultimo celo, sicut et omnia puncta intrinseca cuiuscunque mobilis, nullas lineas
B 128$^{b}$ describunt: ergo non generaliter | penes hoc attenditur motus localis velocitas. Et si dicitur quod equivalet, modo ac si omnes isti puncti describerent lineas istis motibus siderum, assencio quod, si sic describerent ista puncta istis motibus lineas proporcionaliter ad velocitates istorum motuum, tunc in infinitum velocius moverentur quam modo; et sic in infinitum tardius, cum antecedens inplicat substancias duas corporeas coextendi, unam continue quiescentem localiter, et aliam corpus quiescens continue penetrantem: quod cum sit impossibile, patet quod illud consequens verum nullius est efficacie, sed oneris respondenti.

Two opinions regarding velocity of movement. Some say that it is measured by the line described by the point of greatest velocity. Four arguments *contra*. 1. The points of the first mobile and the points inside every moving body describe no lines at all. If it is said that it comes to the same as if each of the points described a line, that implies compenetration; which is absurd.

Similiter, planeta movetur multis motibus, quorum aliquis est velocior, aliquis tardior; et tamen, quamcunque lineam vel situm longum describit aliquis eius punctus uno illorum motuum, describit et quotlibet. Non enim est dare situm quem describit punctus linee, motu orbis superioris, vel motu sui, proprii orbis, vel epicicli, quin eundem describit quolibet istorum motuum; sicud patet attendendo diligenter ad figuram situs quem describit planeta.

2. A planet has many movements, some swifter, some slower, and each of its points describes them all at the same time; it is impossible to find any one line described by a point in this case.

Item, in motibus difformibus quo ad tempus, non tenet illa regula. Ergo est diminuta. Antecedens patet

3. Neither does the rule hold for motions

18. sunt B. 22. quod modo B. 34. aliquid B. 35. punctos B. 39. di$^{r}$ B. 42. dimi$^{ta}$ B.

that are varied in time, for a given length may be traced in a given time by mobiles of infinitely varying velocities.

ex hoc quod contingit infinitos esse motus horales, quorum quilibet describet lineam a pedalis adequate; et tamen primum esse uniformem ut duo, secundum eque intensum gradum ut 4, et tercium gradu ut 8; et sic in infinitum. Ut, posito quod in infinitum intendat aliquod istorum suum motum super aliquam partem sue linee, tardando diucius super reliquam; sicut loquentes communiter in ista materia admittunt, et quibus solet queri quam velociter moveretur corpus motum primo uniformiter gradu ut 4 pro medio instanti inter illos duos motus, et quam velociter descendit grave in confinio inter aquam et aerem.

4. We can give a case of a body in which the swiftest point does not exist.

Similiter, aliquid contingit movere per tempus continue, in quo non est dare punctum eius velocissime motum. Ergo regula non est generalis, cum tamen, dicendo sic regula generalis, eo quod motus difformes quo ad tempus sunt univoce veloces cum motibus uniformibus quo ad tempus, sicut sunt univoce motus cum illis. Ergo dicenda est illis racio eadem. Assumptum huius argumenti foret evidens illi qui poneret in corpore rarefacto per totum, et cum hoc continue circumducto pro quolibet instanti, aquiri novam quantitatem per totum; sed quia illud est impossibile, ideo adducitur argumentum de corpore circumducto, in quo continue corrumpantur puncta extrema: ut posito quod Sor, continue expansis manibus et brachiis, circumducatur et quod continue aufferatur de extremo medii digiti corelative moti, tunc non est dare punctum velocissime motum in Sorte: et per consequens vertigo Sortis non mensuratur penes illud.

If a man is whirled round with outstretched arms, and a point continually cut off from those extremities, it is impossible that his movement should be thus measured. The movement would not be measured by the line just outside the body, for (1) the adversary who replies thus does not admit a definite number of points. (2) No point can move faster than another to an infinitely small extent.

Sed hic dicit taliter | opinans quod talis motus velocitas attenditur penes lineam quam describeret punctus, qui indivisibiliter velocius movetur quam aliquis istorum omnium punctorum motorum in mobili. Sed de isto dicto amiror propter multa: primo, quia iuxta sic opinantem non est dare omnia puncta in illo moto mobili, sicut nec est dare infinita, ut dicit. 2°, quia claudit contradiccionem aliquem punctum indivisibiliter velocius moveri quam movetur aliquis istorum, cum non sit possibile penes ipsum unum excedere aliud per indivisibile: quod tamen oporteat, dato tali motu puncti

B 129a

2. que (*or* quo) libet describe B; *ib.* bn̄e *pro* lineam B 5. aliud B. 13. aliud B. 15, 16. tn ddo B. 19. ddo B. 28. corlo$^{me}$ B. 33. indunt$^{r}$ B. 35. p'mo propter B; *ib.* multo p'o B. 38. indim B.

indivisibiliter velocius moti. 3°, quia tale circumductum non movetur velocius quam aliquis eius punctus; quia tunc moveretur velociori gradu motus; et per consequens, cum gradus iste sit dandus, esset dare illud quod primo movetur illo gradu. Sicut ergo non est dare precise quam velociter precipue movetur aliquis punctus sic moti, ita nec est dare quantum velocior precipue movetur totum mobile. Et quarto patet, quia ymaginato quod Sor circumductus derelinquat post se, per totum in quo fuerit aliqua pars eius [caliditatis, ipsam] caliditatem vel aliud accidens quodcunque, et non extra illum situm, patet quod completa circumduccione est dare totale accidens derelictum, et per consequens est dare eius circumferencia, cum solum finite situaliter extenditur. Quero igitur utrum circumferencia talis accidentis sit maior quam triangulus descriptus a B puncto (indivisibiliter velocius moto continue) quam aliquis punctus in instanti, vel minor, vel equalis? Non dubium quod sequitur, pro quolibet instanti intrinseco motus, aliquem punctum Sortis velocius moveri quam B uniformiter motum. Sed miror quare non erit motus B tante velocior, quam circulus descriptus ab eo erit maior? Et cum uniformiter movebitur, sicud et B, ut suppono, sequitur cum dandis quod in qualibet parte talis temporis, B excederet Sortem per indivisibile. Ergo non solum indivisibiliter movetur B velocius S. Et hic videtur quod, circumducta a B linea A, extremo continue quiescente, causaret per B motum circularem, sicut describeret situm circularem; et amoto eius puncto extremali sine pluri, in $2^{a}$ eius circumduccione describeret circulum inmediatum priori: et sic sine fine. Et sic componeretur circulus ex circumferenciis inmediatis. Nec est dubium quin est dare totale situm per quem Sor fuit pro tempore sue circumduccionis.
B 129$^{b}$ Et sic de A et B linea, quocunque parte mundi, | eo quod est dare maximum situm in mundo, ad cuius

(3) It is impossible that a body could move faster than any of its own points; which is implied, if the measure of its velocity is a line outside it.

10. caliditatis ipsam *deest* B. 30 plũi B.

8. *Et quarto.* Of the whole of this paragraph and the following ones, I have been able to understand nothing relevant to the question discussed. Readers should bear in mind that the MS. is unique, frightfully illegible, especially in this part, without any corrections from here to the end, and bearing upon a subject which is itself particularly hard to understand.

nullum punctum intrinsecum tunc fuit Sortes, et residuum situs mundi, et maximus situs ad cuius quemlibet punctum intrinsecum tunc fuit Sortes. Et idem sequitur de quolibet parcialiter situato, eo quod totalis situs mundi integratur ex duobus talibus sitibus. Et patet quod motus Sortis erit continue extensus per dandum situm continuum; et sic usque ad illius situs circumferenciam. Si ergo quilibet punctus extremalis movebitur quando erit extremalis, et solum instans ante erit extremalis, tunc motus circumferencialis erit compositus ex motibus instantaneis. Et si quilibet punctus talis non movebitur quando erit extremalis, tunc continue ad circumferenciam illius situs erit non gradus motus, ex hoc quod continue ad extremum Sor, quod velocissime moveretur, erit non gradus motus: quod esset mirabile, quia tunc non esset dare quam velociter mobile aliquod moveretur pro quolibet instanti intrinseco; et tamen, dato motu, oportet dare magnitudinem eius mobilis, sicud et diuturnitatem; et per consequens eius extensionem usque ad eundem terminum inclusive, ad quem inclusive terminatur eius primum subiectum. Et sic videtur quod tam velociter diminuitur motus quo ad molem, sicud et eius subiectum, cum continue erit precise par suo subiecto; et eadem diminucione divisione minuetur utrumque; sed subiectum inclusive a gradu magnitudinis usque ad gradum magnitudinis quem habebit tunc, et motus coextensus terminabitur inclusive ad eosdem; quia aliter subiectum deperderet maiorem magnitudinem, et aquiret maiorem parvitatem in equali tempore quam faceret suus motus. Et tunc non esset dare quam velocior diminueretur ille motus vel quantum diminuetur, vel quantum durabit; sicut nec est dare quam magnus vel parvus erit ultimate. Et per idem non esset dare quantum extendetur pro aliquo instanti; cum tamen totus situs mundi integratur ex situ per quem non est iste motus, sequens est residuum situs esse maximum situm per quem est iste motus. Et idem argumentatur de futuro.

Et per idem sequitur, posito quod A, lapis albedine saturandus solum secundum contactum, moveatur usque ad finem illius hore extrinsece, in quo anichiletur,

10. tunc erit B. 17. quod *pro* aliquod B. 22. divisibiliter B. 25. dumet$^{r}$ B. 26–27. a—quem (sic!) B. 40–41. alb$^{o}$ fa$^{d9}$ B.

servatis eius accidentibus (quod est impossibile, toto colore servato), est dare situm per quem est anichilacio, et per consequens, ubi A erit ultimate sicut est
B 130ª dare usque ad quem situm | pretenditur color et defertur accidens per A lapidem. In fine ergo erit verum quod A sit B, et per consequens quod fuit ita quod est hic. Si ergo A erit ad B, punctum extrinsecum, tunc tanget ipsum, et erit ita quod est ad illum. Et habet colorem, si de longinqua extensione temporis habet concedere, scilicet, si aliquid aliqualiter se habuit vel habebit, tunc si se habet. Non enim est color in isto zophismate: *ad istum terminum A est* et *A non est ad istum terminum. Infinitum propinquum est A hinc termino et A non est infinitum propinquum hinc termino;* quia est dare totum situm, per quem adequate nunquam est A, quem situm motum est esse inmediatum termino dato. Si usque ad istum terminum A movebitur, et pro illo instanti pro quo A fuerit in termino inclusivo illius situs, erit A ad illum terminum et super ultimam partem proporcionabilem illius situs.

Nec vereor dare ultimam partem proporcionabilem alicuius continui; quia a signato A, corpore columpnari possibili, uniformis grossiciei ut virgulto correspondentali, dividendo illud in suas partes proporcionabiles geometricas minores, versus B extrinsecum. Ut capio duas lineas girativas, incipientes in extremis dyametri C relique basis, et circumgirent quamlibet istarum parcium proporcionabilium versus B extremum continue propius sibi ipsis, usque ad B basim, et signo corticem interceptam inter illas duas lineas per D: tunc patet quod deus potest corrumpere omne corpus in ista columpna preter D vel partem eius. Stat enim quod D sit magnum corpus ut 4ª vel 5ª tocius A. Ideo nemo qui ponit deum posse tot mirabilia facere negabit ipsum posse separare D et ponere per se; quo facto, eciam pono quod E veniat ex adverso, condensans vel flectens partes graciliores D versus extremum suum lacius. Tunc patet quod est dare instans in quo C tangit D, in quo oportet quod tanget extremum gracile illius D et per consequens est dare communiter quantumcunque longam vel brevem partem determinatam ad illud extremum.

6. h' B. 8. calorem B. 9. longi9 de B. 23. v'gº B; *ib.* cor$^{nli}$ B. 35. c *pro* eciam B.

Data ergo una parte eque longam, sicud gira circumdans grossiciem columpne, patet quod illa cinxit ultimam partem proporcionalem. Nec oportet nos sollicitari de acucie anguli talis corporis, nec de situ in vasi ad quem terminatur; quia non est nostrum distincte cognoscere. Unde si D, pyramis ferrea, tangeret primo secundum communem punctalem F planum per G postea, operatam constantem, videtur quod D abstractum, stante posicione parcium G, haberet in latere applicato plano unum foramen punctale, quamvis non sufficeremus distingwere tale foramen H; sicud nec radium huius transeuntis per illud foramen; nec punctum sibi extremum talis radii incideret. | Tales multas evidencias B 130b feci alias pro et contra. Sed tamen communicando cum theologis, querendum est si deus potest de potencia absoluta facere unum situatum non quantum, post illo habito; si potest anichilare multa talia simul et convertere, faciendo unum quo ad apparenciam continue magnum; et habito quod sic, queratur ut racio, experimentum, vel auctoritas [doceat] quod non omne continuum constat ex talibus de facto. Nam omnia argumenta de racione vel experiencia ducenda in medium eque moverent ad inprobandum talia posse esse, sicud ad inprobandum talia esse.

Leaving these philosophical difficulties, and passing to theology, let us ask if God can make a thing occupy space without quantity, or annihilate and re-create it so as to give the appearance of a thing having continuous magnitude: if so, how do we know that it is not so now? Yet we do. Three things should be noted: *first*, the distinction already set down, as to uniform movements, &c. 2nd, that

Supposito ergo quod sit talis composicio, redeundum est ad regulandum velocitates motuum. Redeundo ad punctum propositum de mensura velocitatis motuum quo ad signum, necesse est tria supponere; primo distinccionem de uniformitate; et sic de aliis divisionibus motuum supradictorum. 2°, supponatur quod solum motus temporalis qui primo tempore mensuratur, sit velox vel tardus; velocitas enim motus respicit temporis

8. opaca B. 20. doceat *deest* B. 25. Suppono B; *ib.* reddendum (!) B.

25. *Composicio.* We have had no mention of any composition of any sort. It may be a mistake of the copyist; it may be a mistake of my own. Possibly Wyclif refers to the *composicio continue ex non quantis*. But when, for instance, there are only three letters, ọp°, so indistinct that ọ may be q, p, f, and o, a, the only thing to be done is to take the nearest guess in harmony with the *form* of the word. To try and guess what *ought* to have been there would have taken up years of labour in merely transcribing the MS. And, where one out of two or three words might stand for several others, it was no longer practical to note down all the abbreviated forms.

diuturnitatem, sicud magnitudo molis vel parvitas permanencium divisionum; ita quod motus subito non esset velox vel tardus, sicut punctus non est parvus vel magnus. 3° supponatur quod possibile sit motus et quotlibet alias formas contrarias eidem simul inesse secundum partes quantificativas diversas; ut sicud contingit unam partem columpne descendere et aliam ascendere, sicud contingit unam partem subiecti calefieri et aliam frigifieri; et sic de aliis alteracionibus oppositis. Et correspondenter contingit simul tempore unam partem dati corporis condensari vel minui, et aliam augeri. Ex quo plane sequitur quod stat idem simul tempore denominari secundum partes formis contrariis: ut signata A columpna, cuius B medietas sit concentrica, tunc concluditur quod subductis inpedimentis, A simul ascendit et descendit; et sic de aliis denominacionibus a formis contrariis. Quicunque enim concedet aliquid denominari secundum partem quantitativam forme habentis contrarium informatam oportet concedere totum eque inter se denominatum cum parte huiusmodi, sive contrarium insit secundum plus vel minus, sive racio insit secundum aliquid; ut eque velociter calefit vel descendit A secundum partem millesimam a toto residuo moto contrarie, sive similiter quiescente, sicud pars fuit talis, mota per totum; et ita sciendum est de quibuslibet formis que habent contraria.

temporal movement alone can be swift or slow.

3rd, that contraries can exist at the same time in different parts of the same subject.

Unde patet quod vanus sit calculus de proporcione inpedientis forme date secundum eius multitudinem vel paucitatem, respectu forme contrarie. Nam eque velociter calefit A corpus cuius solum millesima pars calefit B 131a per totum gradum alteracionis, ut | toto residuo interim frigefacto gradu ut octo, sicud illa pars millesima; et sic simul tempore sit calidum et sit frigidum; et ita de quibuscunque denominacionibus a formis contrariis etc. quo ad omnes auctores vel raciones in contrarium allegandas. Ex hoc patet solucio; quod impossibile est idem subiectum simul et semel secundum idem esse sic contrarie denominatum; et sic specificat Aristoteles et antiqui philosophi racionem contrariorum. Sicud enim est univoce album [et equivoce nigrum, uno tempore album] et alio tempore nigrum, et secundum aliud

It is, therefore, useless to attempt calculating in what proportion the velocity of the whole is hindered by a contrary form, since there is no real contrariety between speed in one part of a body, and slowness in another;

just as the same thing may be white and black in two different

12. permanenter B. 5. quodlibet (!) B. 8. sicud (!) B. 19. habente B; *ib.* sed *pro* oportet B. 34. ex (!) *pro* etc. B. 38. Aristotelis (!) B. 40—41. et — album *deest.* 41. a'os B.

senses, or times, or parts.

pro uno loco album et pro alio nigrum simul, ut volunt admittentes multitudinem corpoream satis admittere: sic idem in numero est idem secundum unam partem quantitativam album, et secundum aliam partem nigrum. Et sic de similibus.

Why this is denied; on account of Nominalistic doctrines.

Racio autem difficultatis ad assenciendum iste sentencie est fluctuacio in rebus communibus, et [doctrina] illorum qui verbis negant communia preter signa. Nam

Unless you fix *movement* precisely as to sense, time, and part, you have a universal movement which may coëxist with any other without contradiction.

Sortem moveri aut esse album aut aliter formatum est commune ad quamcunque formam talis speciei que Sorti pro aliquo tempore inexistit. Ideo, loquendo de forma ultime singularitatis, oportet contraccius specificare: ut iste motus Sortis est *ipsum moveri isto tempore secundum illam partem acquirendo istam materiam motus;* quia aliter esset iste motus multiplicatus per totum, sicud est motus communis. Sicud ergo non repugnat istum *Sor moveri nunc secundum istam partem acquirendo istam formam* et simul cum hoc *moveri nunc secundum aliam partem acquirendo formam contrariam moto opposito:* sic stat Sortem moveri simul et semel motibus oppositis non commixtis, ut per consequens non se inpedientibus a denominacionibus propriis.

Otherwise nothing could be moved in part.

Aliter enim non esset possibile aliquid moveri secundum partem; quod est contra philosophum 1° et 5° phisicorum, et contra communem et venerabilem sentenciam logicorum.

Solution of the question. Every movement is as rapid as its swiftest part, and is measured by the swiftness of that part,

Istis tribus premissis, dicitur generaliter quod quilibet motus velox est ita velox sicud aliqua eius pars, et per consequens cuiuslibet talis motus velocitas attenditur penes partem eius velocissimam mensurantem; ut motus primi mobilis est eque velox sicut motus punctalis partis in equinocciali, licet quomodocunque tarde moveatur aliqua pars eiusdem. Et ita generaliter, quantumcunque velociter movetur aliqua pars punctalis per se mobilis pro quacunque parte temporis, ita velox est totus motus eiusdem, etsi non secundum quamlibet eius partem; et patet quod motus localis velocitas attenditur penes longitudinem situs linealis descripti a punctali per se mobili velocissime moto in comparacione ad tempus mensurans; et sic tollitur instancia de

This answers the length of the line described, relatively to the time. Answer to the *first* argument *contra*.

7. doctrina *deest* B. 20. 8 *pro* Sortem (S ?) B. 22. ad *pro* a B. 32. ẽnocciali B. 39. mote B.

linea superius facta. Nam probatum est superius quod nullus punctus ultime spere describit lineam; quod conceditur. Verumtamen non moveretur nisi describeret situm in mobilem punctalem linearem. Et si capitur quod multiplicius describit eundem situm in numero, et per consequens est per quantumlibet tempus magnum in describendo situm circularem, conceditur conclusio; B 131[b] sed sequencia descripcionis tanti situs equivalet | ac si continue de possibili describeret novum situm. Ideo causatur pars successiva talis motus, qua velocissime movetur, describendo partem situs huiusmodi sine redicione super illam partem spacii. Et ab illa parte servatur velocitas tocius motus.

No point of the highest sphere describes a line, but that which is equivalent to a line.

Quo ad secundam difficultatem tactam de corpore simul moto localiter motibus non componentibus unum motum, sicud contingit de astro moto in suo epiciclo, dicitur quod maiorem situm circularem describit quodlibet eius punctale motu epicicli; et alium motum orbis experigencia. Quod patet, quia astrologi sciunt se percipere instrumento quod planeta pro dando tempore erit in situ celi signato, et in fine temporis sensibilis inmediate succedentis, et orientaliter retrogradiendo; quod non erit motu orbis. Et ista experigencia movet eos ad ponendum epiciclos qui sunt circuli non lacerantes orbem suprapositum, propter eminenciam eorum supra circumferenciam orbis astri; sed includuntur secundum eorum punctum altissimum infra orbem. Quod si non esset talis retrogradacio, sed delatum moveret vertigine, ut describendo situm girativum (ut contingit de sagitta), videtur michi quod omnem partem situs circumscripta circumduccione describit mobile motu certo; et sic est unus motus habens racionem diversorum motuum, cuius velocitas attenditur penes longitudinem situs girativi. Ex quo sequitur quod velocius movetur quam si, cum paribus, sine circumduccione attingeret terminum *ad quem* adequate in eodem tempore. Sed longe alius est motus nunc quam esset tunc, ut patet de partibus motus quo ad molem, capientibus individuacionem a situ.

To the *second*: every planet, by reason of the epicyclic movement, describes a larger circle than it otherwise would do; and thence it is possible for the astronomer to predict that a planet will, at a given time, be in a given place.

If there were no such retrogradation, the velocity of the planets would be measured by the length of the space through which they revolve.

5. m̂l$^{eus}$ B. 17. ^$^{m}$ B. 19. expigenca B; *ib.* qua B; *ib.* fcîut B. 26. includatur (!) B. 31. tracto (?) B. 37. esse (!) B.

19. *Experigencia.* Probably for *experiencia*, and belonging to the next sentence: *quod patet* experiencia. Cf. l. 23.

To the *third*: note that a circular space is described by the movement, and note the total number of punctal movements which together describe the circle; the velocity that is common to each of the movements will be the measure of the whole.

Quo ad $3^{am}$ difficultatem, ubi non est dare punctale aliquod per tempus permanens in circumferencia circumducti, oportet primo, notare situm circularem circumferencialiter descriptum iuxta declaracionem premissam. Oportet $2^{o}$ notare totam multitudinem punctalium conferencium instanter ad huiusmodi circuli descripcionem. Et velocitas motus punctalis partis, que est communis ad omnia illa, erit mensura velocitatis tocius motus. Tale enim est commune citra speciem, et supra ultimum singulare; ut patet alibi. Nam punctale extimum huius mobilis, simpliciter intellectum, est commune ad quodlibet illorum. Et patet solucio ad raciones superius tactas, que videntur refugere veritatem.

*Objection.* The doctrine that the Extended consists of inextended points, is against this velocity of local movement. For take the Equator, the circle immediately above and that immediately below it, with all their points: the Equator moves the quickest, and the other two must stop at a certain moment, while it is moving. This renders it impossible for them to be continuous with it; and so of all the other circles, down to the poles.

Ulterius, videtur quod assenciendo composicioni continui ex non quantis, infringitur sentencia de velocitate motus localis. Nam, capto equinocciali circulo, et circulo sibi inmediato, | sive altrinsecus versus polum, sive B 132a circulo inmediate supposito, videtur quod omnes hii $3^{s}$ circuli, sicut et omnia sua puncta, continue eque velociter moventur, quia quolibet uniformiter quo ad tempus et subiectum, et angulum motus alicuius; istorum aliqua pars quantitativa est eque velox sicud aliqua pars alterius. Ergo conclusio. $10^{m}$ sic plura sunt puncta in equinocciali circulo quam in altero circulorum signatorum; et pene tot situs punctuales occupat circulus equinoccialis, quot puncta habet. Ergo plures situs punctuales occupat circulus equinoccialis, quam aliter sibi inmediatus. Et quilibet punctus alicuius istorum circulorum describit adequate in die omnes situs punctales sui circuli. Ergo velocius movetur quilibet punctus in equinocciali, quam aliquis reliquorum. Et hic videtur quod sit discontinuacio in celo ad quemlibet eius punctum; quia est dare instans in quo punctus in equinocciali describit situm punctalem; et punctus (scilicet inmediatus) non, sed permanet per tempus in eodem

11. extinnu B. 15. sentenciam (!) B. 17. alt'u$^{eq}$ B. 21. angulus B. 23. p̄la B. 33. in$\varphi$ *pro* instans B. 34. f' B. 35. no' B.

1. I suspect Wyclif mixes up the answer to the 3rd and the 4th argument. At all events, I take it that his rule applies to bodies which revolve with varying velocity, as each of the points in a top, for instance. Note that he does not answer the 4th, but passes on to another objection. 23. In my copy of the MS. there is $10^{m}$ (!). If we could change it to *probatur*, or *major probatur*, it would make sense.

situ; ergo, oportet illos discontinuari. Et cum in qualibet circumduccione tante elongabitur, videtur quod per processum temporis quantumlibet distabunt. Et per idem sequitur quod ad omnem punctum circumferencie ultime celi erit discontinuacio.

Ad illud dicitur quod impossibile est aliquod indivisibile velocius moveri localiter quam continue in quolibet instanti dati temporis describere situm suum punctalem; quod cum facit quilibet punctus in equinocciali (ut supponitur), sequitur quod quilibet eorum movetur sibi motu velocissimo possibili. Non enim velocius potest moveri, nisi pro eodem instanti posset esse simul in duobus sitibus, ut dictum est superius; quod est impossibile, quia tunc idem corpus posset dimensionaliter multiplicari per loca. Et ex hoc sequitur, cum veris supra dictis, quod quilibet alius circulus ab equinocciali movetur difformiter quo ad tempus. Nam totalis multitudo punctorum in quolibet minori circulo equinocciali est minor totali multitudine punctorum in equinocciali; et sic de sitibus. Ex quo sequitur quod quilibet circulus sic inmediatus equinocciali ad minimum per unum situm punctalem plus describit de sitibus, quam alius extra illum; quod conceditur. Et ultra conceditur quod quotlibet alia puncta eque velociter moventur uniformiter quo ad tempus. Sed vanum est nobis solicitari quando talis punctus quiescit; cum oportet nos hic ignorare si orbis astri movetur, aut quiescit, astro moto de possibili, ut iudicamus. Supponimus ergo quod in qualibet revolucione, puncto in equinocciali existente in oriente fixo per unum tantum instans, punctus situ inmediatus in qualibet istarum linearum sit in situ suo inmediato per duo instancia; nec sequitur ex tali difformitate discontinuacio, quia
B 132b non superius situs | mundi pertranscendendus. Sed si pro quolibet instanti continui pertransiet unum situm cum puncto equinocciali (et sic de puncto inmediate versus polum) tunc describeretur situs mundi teres vel lenticularis et non sphericus, cum eque amplum situm circularem describeret quilibet talis punctus sicut aliquis. Ideo oportet ex carencia situs fixi quem describeret

To this we reply that the swiftest possible movement of a punc'al substance is one point per instant; and as this is the rate at which the Equator travels, it is evident that every other circle must move slower by at least one point in the 24 hours. We also admit that the movement is uniform, for each of all these points. But we can never know at what moment one of the points is at rest. While each of the points of the Equator changes its place every instant, one of those in the nearest circle remains two instants in the same place; but this does not hinder them from touching. If each of the circles were to describe the same space as the Equator, the world would not be round, but cylindrical.

28. iudi$^{m9}$ B. 30. equinoccialis (!) B; *ib.* exn̄te B; *ib.* p̲vn̄ B. 32. lrar$_{\varphi}$ B. 37—38. describeret B; *ib.* teres vel lenti$^{ar\varphi}$ B. 38. fp̄s = spiritus B.

punctus extra equinoccialem, cessare talem situm describere unum pluries et alium paucius, secundum limitacionem nature ordinantis talem posicionem parcium situs mundi.

It is easy to understand why the centre is absolutely fixed, and the point next to it changes place without separating from it; in the same way the movement of two points in two instants, and of only one in the same time, do not imply separation, as they follow from the idea of a smaller circle, which supposes a smaller distance to be passed over in an equal time.

Nec est difficile intellectum concipere quomodo punctus centralis manebit fixum et punctus sibi inmediatus suppositus in revolucione diurna acquireret 4 situs adequate sine discontinuacione eius a centro; quia non est situs qui intercideret. Et per idem, A puncto equinocciali orientali pertranseunte duos situs punctales in duobus instantibus; et B, sibi puncto inmediato, pertranseunte tantum unum in altero illorum instancium, non foret discontinuacio illorum punctorum, cum posicio circularis situum punctalium requirit quod non intercidat alius situs punctalis. Et idem contingit quando unus punctus movetur, et alius sibi inmediatus quiescit. Si ergo duo puncta signata, in equinocciali et circulo sibi inmediato, haberent pene tot situs punctales materiali tempore distribuendo, et unus pausaret per instans et alius non pausaret, tunc facta continuacione revolucionum distarent, ut innuitur. Sed modo, proporcionaliter ut punctus pausabit, habebit pauciores situs, describet situm punctalem in quo pausabit; non in primo instanti pausacionis, quia per idem in casu aliquid describeret situm punctalem super quem prope quiesceret; nec in 2° instanti, quia tunc esset dare primum instans motus pro quo mobile esset in termino aliquo.

Ista autem est difficultas logica, postquam homo moverit scienciam veritatis inveniuntur, ideo menciuntur multi verbaliter concedentes. Michi autem videtur quod omnis descripcio situs punctalis est pro illo instanti pro quo mobile punctale est in illo situ, et in proximo instanti subsequenti est in alio, et per consequens in

12. t͡m B. 18. p͡e B. 19. m͠eli B.

29. *Logica.* This sentence. I have not the slightest doubt, is the exact reading of the MS.; but it has no sense whatever, so far as I can see; probably an important omission. No one who studies this pages can doubt that the copyist was as negligent as his writing is illegible. Dr. Rudolph Beer thinks it was a student's copy, for his own use.

casu posito, in 2° instanti, et non in primo, describitur datus situs. Et sic queritur ut sequens: sequitur ex posicione continui ex non quantis quod est dare primum instans cuiuslibet talis motus; quia, si non, in tali instanti in quo punctale est in situ punctali, sed in-
B 133ª cipit | derelinquere ipsum, describit illum: tunc oportet quod instanti primo, cum pertransiret illum. Et sic describet punctus motus in casu puncta constituencia lineam successivam, solum pro mensuris quibus non essent, posito quod successive generabuntur puncta, subiecta puncto subito fluenti, et continue corrumpentur; ita quod continue sit unus eorum in actu a puncto supposito, et sic in fine, quando mobile foret in termino ad quem foret ultima distribucio divisibilis proximi: quod est irracionale. Secessus igitur indivisibilis ab indivisibili est *mutari*, et successivus indivisibili proximo est *mutatum esse*. Verumtamen pro illo instanti non foret *mutari*, nisi inmediate succederit *mutatum esse*. Et ita in casu notato: pro illo instanti quo indivisibile circuli proximi equinocciali incidit in situm indivisibilem orientis, est *mutatum esse* respectu indivisibilis proximi precedentis; et pro illo instanti pausant instanter, cum non inmediate post illud instans erit situs descriptus post illud instans; sed inmediate post illud describitur. Nec est ista pausacio instantanea quies proprie, sicud nec *mutari* est motus aut quies. Et ita potest dici in omni mutacione subita, quod res pro illo instanti pro quo subita sic non est facta, sed incipit esse facta; ut contingit de linea, et anima, ac similibus que fiunt in instanti. Et sic non est, quandocunque creatura est facta vel est creata. Nec oportet, si res nunc non est facta, et fiet, quod nunc sit illa vel aliquid eius fiendum; sed bene sequitur quod ipsum est fiendum in tempore suo. Et ita homo moritur pro ultimo instanti *esse* sui, quando patitur mortem, que est *mori*, et inmediate post est mortuus, et mors est lapsa sua; et sic de similibus.

Difficulty about the movement from one point to the next.

Wyclif distinguishes between *changing* and *having changed* places.

At the instant one point leaves its place, it *changes;* at the instant it comes to the next, it *has changed.*

This is true of all instantaneous changes, as the acts of the mind;

also of death.

Notandum tamen quod hoc nomen, *mors*, equivoce intelligitur apud multas: ut quedam dicitur mors *spiritualis*, et quidam mors *corporalis*. Sed de primo membro et eius subdivisionibus foret hic inpertinens nobis sermo.

Digression concerning death; its divisions: *spiritual* and *corporal* (which we may omit);

11—12. corrumpantur *(quite vlain)* B. 15. Lacessus B. 26. quietes B. 41. hinc B.

*absolute* or *relative;* absolute, when the being is no more, *relative*, when a part of the body dies; in this there are degrees; *first* the animal heat only partly assimilates; second, it altogether fails to assimilate, or to keep together the parts; *absolute* death is instantaneous.

Mors autem corporalis vel dicitur *simpliciter*, vel *secundum quid*. Simpliciter, quando unum simpliciter desinit univoce 2$^{m}$ partem eius corpoream. Sed mors secundum quid est cuiuscunque partis viventis mortificacio; ut a tempore status [sanitatis] animalis usque ad eius mortem simpliciter, moritur animal quasi continue quo ad partes, dum calor naturalis, primo claudicans, non plene assimilat, sed in parte digerit adnatam pingwedinem. 2$^{o}$ plus depauperatus, nec assimilare sufficit, nec assimilatum servare; et tunc defluunt partes continue, quousque vita simpliciter extingwatur. Et illud idem ultimum *mutari* est mors, indivisibilis quo ad tempus, cum sit motus subitus quo aliquid unum denominatur mori simpliciter.

Death and life are opposed; so the same body or part cannot be in the same sense dead and alive, either absolutely or relatively.

Et cum mors et vita sunt opposita privative, sicut repugnat idem simul secundum eandem partem vivere et mori, eciam morte 2$^{m}$ quid, que est divisibilis successive; sic repugnat quod idem simul, secundum eandem racionem, vivat simpliciter et simpliciter | moriatur. B 133$^{b}$ Moritur autem corpus simpliciter, quando secundum quamlibet eius partem quantitativam [que] vivit in illo est mortuum. Et primo in animali vivit cor, vel aliquid cordi propior; et sequentur alie partes ordinate, secundum earum dignitatem. Et breviter, pars cui primo vita adiungitur, ab eadem ultimo separatur; ideo, cor vel minimum eius naturale expectat ultimum *mutari* quod est mors. Et simpliciter vivit secundum racionem positivam quod habet esse viventis; et simpliciter moritur secundum racionem qua mutatur ab *esse* viventis ad omnino *esse* huiusmodi mutacionem, ab *esse* vivi ad *non esse* vivi. Sic enim generacio et corrupcio specificantur ab Aristotele penes suos terminos contradictorios utrobique; ut terminus *a quo* generacionis est *non esse*, et terminus *ad quem* est *esse*. Econtra autem est de corrupcione.

Life is first in the heart, and leaves it last.

The change from life to death is, like dissolution, one from *living* being to *non-living* being; the term *ad quem* is the *non-entity*, the term *a quo* is the entity.

It is argued that at the moment of death, the living and the non-living entities are together.

Nec oportet logicum timere instancias sophisticas, quibus aliqui arguunt quod tunc sunt simul *esse* et *non esse* eiusdem. Nam constat extendentibus verba, et intelligentibus negaciones participialiter in suo tempore,

5. sanitatis *deest* B. 9—10. nisi assimilatum *pro* nec assimilatum. 10. f,raj'e B. 11. int$^{a}$ fm$^{r}$ B. 15. sic (!) B. 17. z' *pro* eciam B. 20. vunt *pro* moritur B. 21. que *deest* B. 21—22. illa . . . mortua ppor B. 24. bcvit'(?) B. 27. fr B.

quod non obest idem generatum quod eternaliter est secundum *esse* intelligibile, habere pro dato instanti *esse* actuale et pro proximo instanti. Vita enim non dicit formaliter mutacionem, cum analogice inest deo. Sed mors, ut huiusmodi, dicit precedens *non esse* actuale; quia infinite intelligendo, est aliquod *non esse*, et secundum totum huiusmodi, *generari*. Et si idem in instanti proximo subsequenti habet *non esse* actuale, tunc simul cum hoc, ut sic, corrumpitur vel moritur, ut [non] sit vivum.

But this is not inconvenient for one who knows how the present may be extended to the part; life may be eternally possible, and actual only at one moment; if the next moment actual life exists no more, then the preceding one was that of death.

Notandum tamen quod vita potest intelligi equivoce pro forma substanciali permanente qua vivitur, vel actu eius successive individuato a tempore. Et de illa que consistit in successione, racione temporis adiacentis, quod est plurimum individuans eam longam vel brevem, est nunc nobis specialiter sermo. Sicud igitur eidem simul insunt incepcio et desinicio privative opposita, primum $2^{m}$ negacionem de preterito, et ultimum secundum negacionem de futuro; sic vita et mors, cum non sint pure privative opposita (ut visus et cecitas, et privaciones formarum substancialium et accidentalium, que non simul compaciuntur inter se secundum aliquem gradum), sed pocius sicud generacio et corrupcio, magnitudo et parvitas, intensio et remissio et forte lux et tenebre. Et patet quod si aliquid moritur, vel mors sibi inest altero dictorum modorum, tunc vivit pro eadem mensura temporis, licet dispari racione. Illi autem qui negant composicionem continui ex non quantis dicunt quod mors vel est *mutatum esse* subiectum in termino vite exclusive, vel $2^{o}$ est simpliciter et primarie privacio vite in corpore quondam unito. Prima est ita in primo instanti *non esse* viventis; et $2^{a}$ est quantumlibet longa; B 134[a] nec est in | ista variacione, dum tamen sciatur fundare quod corpus moritur vel mortem patitur quando non est, vel quod anima separatur pro instanti quando non est anima, aut quod mors non potest esse possibilis, terribilis, vel timenda. Prior autem responsio est michi plus placida, et consequens ad predicta.

Life, however, may mean either the vital principle, or its act, individuated by time; we mean the latter here. Life and death are like beginning and ceasing, both of which may be predicated of the same, but the former is a denial of the past and the latter a denial of the future. If anything dies in any sense, it lives at the same instant, but in a contrary sense. Those who deny our doctrine of the composition of the continuous, say that death is the change of a subject after the end of life, or the absence of the soul from the body. I prefer the first answer.

Si autem queratur quando datus punctus movetur tardius quam punctus in equinocciali vel difformiter

Return to the main subject. The question as to when one point moves slower than

5. precedente B. 10. non *deest* B; *ib.* vum B. 13. individuate (!) B. 22. imi[r] B. 2 . aliud (in full) B. 26. bi[t]' *or* tuc (!) B. 31. quod; B.; *ib. beneath* ita B. 36. quo B. 38. adp[ta] B.

another in the above mentioned circles, is absolutely useless.

quo ad tempus, dicitur quod in quolibet tempore cuius instans pausacionis est intrinsecum, et solum in tali; et cum nulla pars quo ad tempus, vanum est verificari pro quo instanti vel per quod tempus foret motus huiusmodi. Multe enim sunt iste, et in nulla eius 2^m completam et propriam existenciam. Nullus ergo motus est temporaliter difformis in instanti; et per consequens nec per tempus; sed in tempore quo primo est, et quomodolibet alio cuius ipsum est pars. Si autem talis difformitas habet esse incompletum in causis

The movement is varied (in the subject) if it be not as swift as possible; it matters nothing that it is not varied in itself.

suis continue vel non, est huic inpertinens. Ex quo patet quod non oportet, si talis motus sit secundum se totum difformis, vel velocissimo remissior, si utraque medietas dicti motus et quelibet alie eius partes aliquo tempore non sunt difformes. Quod exinde totus non sit difformis. Patet eciam quod contingit eundem motum nunc esse velociorem et nunc tardiorem, non descendendo ad instans, sed ad parvum tempus; et semper, dato tempore, est dare quam velox est, dare motus pro illo tempore et gradus velocitatis. Est velocitas danda que non mensuratur instanti, sicut nec velocitas vel motus cuius est passio.

We must remark that many words represent both movement and relation at once, as *ascent* &c.; and the words *earliness* and *rapidity* are taken to mean the same, whereas the former indicate only a relation of precedency in time. What is early may be very slow; a thing that is very late may be extremely rapid.

Sed ulterius est diligenter notandum quod sunt aliqua aggregata ex motu et relacione; ut ascensus et descensus, ortus et occasus, et similia. Et in talibus decipiuntur plurimi propter ignoranciam distinccionis inter citoitatem et velocitatem, seroitatem et tarditatem. Contingit enim sex signis aliquibus oriri subito, vel occidere, quantumlibet tarde mota; quia celeritas vel subitacio talis non recipit velocitatem motus, sed quam cito erit sub orizonte vel supra orizontem. Nam quantumcunque festinans vel citus erit quantumlibet tardus motus; et quantumlibet sero erit quamlibet velox motus. Nam citissime vel celerissime est quitquid est in primo instanti temporis; et plus sero ut ab eo distancius etc. Contingit idem, quamlibet celerius ascendendo, tardius moveri, et econtra.

3. veri B. 15. *after* tempore × B. 17—18. descedo B. 18. fp B. 23. dir B. 32. situs (!) B. 36. afte'do B.

13. *Difformis.* Note above the definition of movement varied in its subject; a distinction of no value in modern Mechanics.

Sed contra dicta de posicione situum indivisibilium primo celesti videtur sequi quod non sit realiter circulare, eo quod non est racio quare unum situm circumferret et duos situs inmediatos in ultima circumferencia mundi ex uno latere, quin per idem esset sic ad quemlibet punctum eiusdem circumferencie, cum sit uniformissime curvitatis. Et tunc continue pertran- B 134[b] siret punctus maioris circuli duos situs, | dum punctus minoris circuli describeret unum solum; et sic in eadem superficie circumferrent eidem puncto 6 puncta, et per consequens infinita mundi circumferrent eidem puncto quotlibet puncta ex omni latere. Que duo sunt mathematice impossibilia composicioni continui ex non quantis.

*Objections:* 1. If the first mobile could move two points in one part and in another only one, being perfectly spherical, it ought to do so everywhere, and we must either deny its sphericity, or admit that at an infinity of points an infinity of points is moving round each.

Item, proporcionaliter ut circulus est minor, est curvior; sed ad omnem punctum circumferencie mundi est infinitum magna parvitas, et est uniformis tota curvitas per totum composita ex non quantis: ergo, illa tota superficies est summe curva; quod est summe inpossibile. Maior argumenti patet, ex hoc quod si circulus maior mundi diminueretur ad non quantum, stante continue circularitate, ille foret proporcionaliter curvior sicud minor: ergo, etc. Aliter enim quelibet porcio equalis foret precise eque curva sicud ipsa circulata; quod est inpossibile, cum tunc tantam curvitatem contineret, quanta est curvitas tocius equinoccialis circuli. Minor argumenti facti est patula cuicunque qui videt quod circuli paralelli equinocciali versus polum, ut sibi propiores, sunt minores. Cum ergo quilibet punctus dicte circumferencie sit polus respectu alicuius maioris circuli, sequitur quod periret iudicium de parvitate circuli ad quemlibet eius punctum.

2. As a circle is smaller, it is more curved; now the pole of the world is a point equal to a circle infinitely curved; and each point of the world's circumference is the pole of a circle; this circumference then, though the greatest possible circle, ought to be infinitely curved every where!

Item, circulus equinoccialis est uniformiter curvus, ut sepe captum est, si sub aliquo gradu sit curvus; sed aliqua eius quantitativa pars curvabilis non est curva; ergo, totus circulus non est curvus. Maior patet ex hoc quod quelibet $4^{a}$, vel alia pars, eque distat a centro secundum quemlibet eius punctum: quod non

3. The Equator must have the same curvature everywhere; but somewhere it is not curved; so it is curved nowhere.

2. p'mo celi B. 3, 4. c'cufta B. 4. imti B. 7. vmformē B. 10. circufta et circuftaet B. 12–13. matē B. 13. 9poni B. 17. ita B. 23. pte' B. 28. palelli B. 28. i' *pro* sibi B. 33. ei B.

esset, nisi servaret equalem curvedinem; ut patebit igitur maior. Sed minor, sic assumpta, sic probatur: pars quantitativa tenet tripunctalis huius circuli; non est omnia; et per idem nulla pars finitorum punctorum quo ad nos oportet quod curvitas sexti punctalis partis, si detur, esset mole divisibilis, et per consequens habet multas medietates partes, et per consequens (cum ad omnem punctum circuli sunt tres ternarii punctorum) sequitur quod ad omnem punctum forent tres gradus curvitatum. Et sic curvitas foret linearis extensa per arcum ad quemcunque eius punctum, secundum unum gradum indivisibilem. Nam si multiplicetur per tria puncta, tunc in arcu sextipunctalis essent $4^{or}$ curvitates habentes posicionem; et per consequens constituerent linearem curvitatem. Sic est de formis superadditis, quod si detur aliquam proporcionem dicti arcus esse rectam, tunc signata illa per A B, et signato centro mundi per C, sequitur quod triangulus A B C habeat duos angulos rectos, contra $32^{am}$ primi.

This is proved by the fact that the line is formed by a succession of groups of six points, which can be resolved into triangles, of which no part is curved. Taking moreover two apices of one of these triangles in line with the circumference, and the centre of the world, the three points would form a triangle with two right angles.

Pro isto oportet | supponere, sicud supra, quod situs B 135a mundi cum componitur ex non quantis, habeat eorum composicionem, soli deo notam quam nos intelligendo convincimus insurgere ex puncto centrali duobus altrinsecus copulatis, constituendo triangulum minimum possibilem, et post quadratum A, ac $3^{o}$ pentagonum qui primo habeat racionem circuli, cum omnes semidyametri bipunctales ducte a centro ad circumferenciam sunt equales. Eptagonus autem primo habet complecius racionem spere; et sic de omnibus aliis numeris circularibus ex hiis dictis. Nec individuatur parcialis situs ex isto vel isto parciali corpore situato, sed totus situs mundi individuatur ab hoc in mundo et eius principiis. Parciales autem situs individuantur simpliciter a parte mundi sic magna vel sic posita. Et ita situs parciales inmobiles a nullo singulari suo subiecto dependent, sed ex materiali substancia et figura secundum respectum ad inmobiles differencias huius mundi. Et tales situs immobiles possunt ingredi quecunque partes mundi

*General answer.* God alone knows the composition of those indivisible things of which the world consists; but we suppose that there is first the central point; this with two others constitutes the smallest possible triangle; another makes the square; then the pentagon, that first begins to approach circularity; afterwards the heptagon, similar to a sphere; and so on.

1. ptēbt B. 3. t3 B. 4. oīa B. 5. esse *pro* oportet B. 13. ptā B. 19. f,ul B.; *ib.* 93 2am p'nn B. 23. 9iuti9 B. 24. coplatē B. 29. deo uubus B. 29–30. t'tnb9 B. 32. iundo B. 37. *after* mundi B.

proporcionales aliis egredientibus a communi agregato, acquirendo et deperdendo ex illis sitibus sua ubi.

Ad primum dicitur quod quilibet circulus maior mundi est uniformiter minime curvitatis, et quemlibet eius punctum circumstant in eodem circulo duo puncta; et per consequens in alio circulo maiori intersecante recte speraliter ad punctum datum tangunt ipsum ad duo puncta; et punctus semidyametri mundi proxime sibi directe suppositus in quinto ordine tangit ipsum; et sic quinarius qui $2^{m}$ Aristotelicos est primus numerus circularis sic est principium posicionis punctalium, sic et finis. Alia autem puncta que lateraliter ipsum respiciunt, sive puncto medio illius ordinis incidente, non sunt sic inmediata vel ipsum tangencia, nisi forte equivoce, ut supra dicitur. Et correspondenter de composicione indivisibilium situum est dicendum. Concluditur igitur quod quemlibet punctum circuli inmediate equinocciali supposite superstant tria puncta, unum directe terminando dyametrum, et alia duo lateraliter, que non tangunt nisi indirecte vel equivoce supra. Et tamen totus circulus equinoccialis non excedit datum circulum suppositum, nisi solummodo uno puncto; quia nec oportet nos sollicitari quis sit ille dispar punctus terminans dyametrum solo puncto ab alio differente, vel credere quod in illa porcione circuli tripunctali sit maior curvitas vel declinacio a rectitudine.

Et patet quod nec sequitur quod quemlibet punctum circumstent puncta infinita, sed et omnia puncta mundi, sicud et tota est universitas materialiter finita. Ymmo ex composicione continui ex non quantis videtur patulum quod omnium ysoperimetrorum figura circularis sit capacissima; quia da B quadratum, et A circulum punctorum parium, et cum hoc, quod precise tot puncta
B 135$^{b}$ contineant prime superficies intercluse; | et patet quod linea quadrata proximi proxima intra B habet in $4^{or}$ angulis $4^{or}$ puncta, communicata 4 suis lateribus; et sic usque ad quadratum centrale minimum. Et per consequens, cum quelibet linea quadrata proxima inferior continet per $4^{or}$ puncta paucius quam sua exterior; in circulo autem est excessus solummodo uno puncto;

1. Every great circle has the smallest possible curvature, and each of its points has only two others, one on each side, in that circle. This point is touched by two others, belonging to the great circle that intersects the former circle at right angles; and by a fifth, which is the end of the radius of the sphere; the quinary number being the end as it is the beginning of position in space. Three points only are immediately above every point of every circle that is tangent to the Equator; yet the whole Equator has but one point more. Thus there is not an infinity of points touching each point. Here our system gives a proof that the circle is the most capacious figure of all, on account of the angles of the other figures, which necessarily have points common to the intersecting sides, from the outside to the centre.

2. ſua vbi B. 8. ſcuu$^{t'}$ B. 9. qui͡to B. 10. Ar$^{e\,cas}$ B. 21. cum *pro* tamen B. 34. p͡e B. 37. q̃rt͡u B.

patet quod est crementum multitudinis punctalium in figura A circulari, racione uniformitatis linee et amplitudinis angulorum supra illud quod est infra B, racione uniformitatis linee et strictitudinis angulorum. Et ita creditur esse radicalis causa demonstracionis in hac parte.

2. It does not follow, that the more angles a figure has, the less space it contains; quite the contrary. Nor that a circle can be infinitely curved or small. Nor that the least curved circle has less curvature than that which is most so; all the points are in both cases equally distant from the centre. Thus the compound of two points is properly neither straight nor curved; they begin in the compound of three points, which is the cause of both.

Nec sequitur ex istis quod triangulus magis, et multiangulus minus contineat, sed pocius oppositum. Sed bene videtur dicendum contra quod par porcio minoris circuli minorem curvitatem continet porcione maioris circuli superius; sed omnes completi circuli equalem continent curvitatem. Nec est verum quod in curvitate vel parvitate circuli descenditur infinite, cum status utrobique ponitur ad finitum. Nec obest ad omnem punctum dati circuli minime curvitatis esse gradum curvitatis maximum, qui non sit gradus minime curvitatis. Cum enim quilibet punctus equinoccialis eque distat a centro, nullus est supra alium, sicut nec puncta circuli cuiuscunque concentrici. Unde, sicut nec rectitudo, sic nec curvitas est formaliter in continuo bipunctali; sed primo ad minimum in tripunctali causaliter, que est in qualibet eius parte. Ideo non oportet sollicitari circa partem punctalem rectitudinis aut curvitatis, sed intelligi oportet quod nulla sensibilis porcio cuiuscunque minoris circuli minus curvari poterit quam par porcio circuli magni mundi, cum gradus sit proximus non gradui curvitatis. Et credo quod non sit dare infra mundum situm conformissime curvum cum situ porcionis circuli magni mundi. Nec est rectitudo per aliquam partem dati circuli, licet nobis videtur superficies proporcionaliter curva et constanti colore visibilis summe recta, ut patet de superficie spere aque.

We need not trouble about the angle of tangency outside of the world, until it be proved that space is possible there. A part of a quality cannot be so intense as its whole;

Nec oportet sollicitari circa quantitatem anguli contingencie tante ex contactu recte linee extra mundum; quia, ut alias dictum est, differendum est a solucione talis argucie quousque positum sit probatum. Nec ymaginari est de curvitate, vel caliditate, vel qualitate simili uniformi quod quelibet pars quantitativa sit eque intensa cum suo integro, cum curvitas eiusdem circuli

1—2. infra A (?) B. 11. s'p⁹ B. 15. omnem *pro* esse B. 31. calore B. 32. fu^e B. 39. que *pro* quod.

maior mole sit minori intensior, et curvitas cuius-
B 136a cunque | completi circuli summe intensa possibilis.

Unde ista consideracio de extensione curvitatis videtur michi differenter contra quodlibet militare, cum quocunque curvo signato, ad omnem eius punctum intrinsecum est non gradus curvitatis, et proporcionaliter ut pars circuli est minor, sibi correspondet gradus remissior curvitatis. Et sic habent adversarii dicere quod totum circulum et quodlibet curvatum est non gradus curvitatis et infinitum remissius in qualibet sui parte. Et hic vellem quod diligenter considerarent metaphisicam de puidditate et passionibus curvitatis et anguli. Tunc enim non mirarentur quomodo curvitas extensa est maior, nedum movetur mole, sed intencione, qualibet sui parte. Nec dubium quin tota curvitas quantitative componitur ex parcium curvitate, cum quelibet pars habet situaliter propriam curvitatem, que causat intrinsece propriam curvitatem.

Sed 2° si dicatur quamlibet partem circuli eque curvatam qualibet et cum toto, eo quod curvitas attenditur penes curvitatem anguli ad punctum extrinsecum curvitatis (ut circulus maximus est minime curvus; circulus autem in quantum minor fuerit est plus curvus): contra illud videtur, primo, quod quelibet curvitas consequens angulum acutum figure rectilinee foret maior quam curvitas cuiuscunque circuli, licet in infinitum magna sit alia. Nam sicud angulus contingencie est infinitum minor quam angulus rectilineus alius acutus, ut apparet, sic angulus intrinsecus sibi oppositus est maior quam alius angulus rectilineus. Sic videtur quod triangulus rectilineus sit infinitum curvior quam circulus, et est comparacio curvitatis ad curvitatem, sicut anguli ad angulum, quam geometer admittit. Et tunc esset querendum utrum curvitas trianguli sit mole magna. Sed videtur quod stat A lineam triangularum ad omnem eius punctum acquirere curvitatem, et nullam deperdere; et tamen non esse curviorem in fine quam in principio, posito quod ysocheles curvetur secundum partem circuli usque ad F ad angulum exclusive. Et

thus the curvature of a larger circle is greater than that of a smaller one. This question is a difficulty for my opponents too. At every point of every circle possible there is *no* curvature; and as a proportional part of a circle is smaller, its curvature is less. Let them examine with care what a curve and an angle is; they will then understand how a larger curve is more intensely great than a smaller one. If they say that each part of a circle is as curved as the whole, and that the curvature is measured by the angle of tangency of each circle, it would follow that any curve tangent to an acute angle would be greater than that of a circle, and that a rectilinear triangle would be infinitely more curved.

12. q̂,te B. 18. propriam curvitatem (sic) B. 20. curvatum B.
25. minor B. 28. a's B. 30. a's B. 34. e͡e B.; *ib.* quend, B.

patet conclusio, cum omnis linea sic eque curva sit aliqua eiusdem pars, et quilibet angulus acutus rectilineus sit acucior angulo supra arcum. Casus videtur possibilis, cum linea non potest secundum partem curvari, nisi usque ad punctum terminans exclusive.

Besides, in this view circularity and curvity would be identical, and as all circles are equally circular, all curves would be equal, and the circle would be more curved than any one of its arcs, yet incommensurably so; but the semicircle would be as curved as the circle.

3° Sic quelibet circularitas est per se curvitas, sed nulla circularitas est maior circularitas quam quelibet; ergo, nec maior curvitas. Et sic sunt omnes circuli eque curvi. Ex quo plane sequitur quod circulus sit curvior qualibet sui parte, et pars eius, ut maior, sit curvior; et nulla curvitas porcionis circuli parificabilis circulo alteri, sed quod sit proporcio irracionabilis curvitatis circuli ad curvitatem cuiuslibet porcionis, sicud trianguli rectilinei ad angulum continencie et angulum sibi oppositum; sed, quibuscunque circulis | annotatis, tantam curvitatem continent semicirculi, et omnes sunt correlative proporcionales, licet partes pares circulorum inequalium dispariter sint curvate; ut puta porcio minoris circuli, magis curva. Sed recuperacio est de maioritate proporcionalis porcionis maioris minoris circuli. Nunquam tamen venitur ad paritatem curvitatis porcionis circuli et curvitatem cuiuscunque circuli, cum sint disparis racionis. B 136b

Curvature has no quantitative part of the same nature; but it is made up of many different curvenesses. In each point composing a curve there is the least possible subjective curveness, which partial principles of the curve are everywhere united in the circle.

Ex quo videtur quod curvitas circuli non habet partem quantitativam omogeneam, sicud nec figuracio eius; sed habet quotlibet partes quantitativas, que sunt curvaciones. Et est dare certam multitudinem punctualium Deo cognitam in quibus ad minimum est minima curvitas subiective, et in quolibet illorum punctorum; et illa curvitas taliter erit multitudine. Et sic ad omnem punctum circuli communicant in suis principiis parciales curvitates, ut superius dictum est de formis. Et hic est dare maximum circulum possibilem, et minimum, gradusque minorum punctalium Deo cognitorum, in quibus consistunt, dato circulo minimi gradus curvitatum. Nec est putandum quod in quolibet tripunctali circumferencie mundi sit curvitas subiective, que tunc foret per totum summe aspera atque curva. Sed satis

1. c̄ B. 17. fut B. 18, 19. utp porco B. 19. r'cupa° B. 19—21. magis — circuli *twice; ib.* rcupa° B. 20, 21. dr'ᵉ bⁱᵗ⁵ B. 26. quodlibet, *and so on very often* B. 27. c'ca B. 28. de' B; *ib.* cognita B. 30. cāter B.; *ib.* et B. 37. fbm̄eq3 B.

est quod quelibet pars [sit eque] curva cum qualibet sibi pari; penes hoc attenditur uniformitas curvitatis circuli.

Et si dicatur quod quandocunque due linee recte applicantur ad idem, indirecte causantes angulum, ille angulus est rectilineus, verum est si non sint partes circuli causantes ad omnem punctum sui intrinsecum, elementaliter sed non formaliter, angulum circuli qui correspondenter est multiplicatus intrinsecus sicud curvitas.

It is true that two straight lines, meeting in one point, form a rectilinear angle; but only if there are no parts of a circle at that point.

Ad 3$^{m}$ patet ex dictis solummodo quod prima consequencia non valet; quia satis est quod quelibet pars curva sit eque curva cum qualibet sibi pari quod est sperale. Et ulterius de rectitudine angulorum duorum trianguli rectilinei, eo quod quelibet semidyameter circuli causat ad eius circumferenciam angulum parem cum qualibet, et per consequens, una dyametro stante orthogonaliter super arcum, tangendo angulum rectum, causabit et quelibet: quotlibet sunt peticiones, descripciones, et conclusiones geometrice que videntur refringere istam sentenciam; sed omnes, ut dictum est, intelliguntur de illis angulis et figuris ymaginacioni subditis; nos autem loquimur de illis que a solo intellectuali nosci possunt, ut docet Augustinus in *De Quantitate Anime*. Quod si quis dicat quod eque verificantur omnes conclusiones geometrice de pure intelligibilibus, sicut de ymaginibus, leve verbum est et
B 137$^{a}$ sine probacionis efficacia eructatum; | et ideo non creditur sibi, nisi efficaciter approbetur. Quod si dicitur capacissimum et multos alios expositores Euclidis illud asserere; revera multi subtiliores, ut Pitagoras, Democritus, Plato, Epicurus, et inter moderniores Lincolniensis cum aliis, sequentes tramitem veritatis, constanter asserunt oppositum. Ille tales topice raciones in materia doctrinali, deficiente demonstracione, adducte, indicant defectum garulum argumentorum. Sic dico quod nulla est conclusio demonstrabilis in continuis, quin sit demonstrabilis in lineis [et] numeris; sed forte non econtra, propter ampliacionem subiecti prioris.

3. As for the third objection, the first part proves nothing; every part of the Equator is curved, and equally so. As for the argument of two right angles in a triangle, the radius falling at right angles on two points touching each other, there are many other *dicta* of geometry seemingly against our system; but they only concern such figures as can be imagined, not those which are only conceivable by the mind, and there is no foundation for asserting that these latter are subject to geometrical laws. In that respect, authority is in our favour; and to bring forward such arguments proves a want of better ones.

1. sit eque *deest* B. 2. pes *pro* benes B. 4. illius B. 7. elec$^{ter}$ B. 11. quelibet *pro* qualibet B. 17. cãndo B. 20. refu'g'e B. 23. mte$^{u}$ B. 25. verificatur B. 27. crugatum B. 29. capa$^{m}$ B. 30. pitago'ess B. 32. tm̃tatẽ B. 37. q̃ B; *ib.* et *deest*.

We have already pointed out that geometry goes no farther than to insure sensible, not absolute, exactitude. No one can ever give the exact value of $\sqrt{2}$ (relation of the diagonal to the side of a square) nor prove the commensurability of one arc with another, nor find the relation between the diameter and the circumference. All we can do is to get at such probability as is either truth or beyond correction by the senses. All scientific certitude lies in numbers; things sensible are liable to confusion and error, and therefore we are not happy here below. It may be said that we can get absolute exactitude thus; if A is divided into B and C, B exceeding C by one point, then we have $A = \frac{B}{2} + \frac{C}{2}$. Some will answer: It may *be called* the double, but it *is not* the double of either. But you cannot call anything that which is impossible,

Et patet quod conclusiones geometrice non demonstrant cum precisione, sed cum exclusione erroris sensibilis; sicud dictum est de divisione cuiuscunque continui date linee, vel dati anguli in duo equalia. Sed modicus in principio error maiorem efficit in processum in fine. Patet quod nullibi demonstratur cum precisione medietas proporcionalis duple, cum petitur quod quanta sit proporcio cuiuscunque dyametri quadrati ad suam costam sicud alicuius quadrati dyametri ad suam costam, quod arcus sit de numeris et per consequens de continuis claudicare. Ymmo, capto quocunque quadrato, cum sit quotlibet dyametri $2^{m}$ capcionem punctalium variate, incertum est cuilibet geometrico de quantitate et proporcione intelligibilis dyametri; sicut, secundum Lincolniensem, incognitus est sibi numerus punctalium sibi componencium; et de dyametro sensibili habet coniecturam probabilem vel veram, vel veritate in propinqua, a sensu incorrigibilem. In numeris ergo cognitis absolutis consistit certitudo sciencie; et in sensibilibus langwet erroneus et confusus. Quamvis, secundum Augustinum, scimus quod corpus omogeneum, eo quo numerosius est, mellius aut magis esset; sed cum ignoramus numerum adequatum, et per consequens bonitatem atque magnitudinem numerati, non possumus vere dici cum tot langwidis ignoranciis hic beati. Ideo vere dicitur quod beatitudo non consistit obiective in athomis Epicuri.

Et si dicatur quod sicut variatur medietas maior continui, que indivisibiliter plus excedit, sic potest dici quod totum habet se in proporcione dupla ad utrumque; quamvis zophista concederet conclusionem, dicens quod tam proporcio 5 ad $3^{a}$ quam quinque ad duo potest erronee dici dupla, non tamen exinde sequitur quod sit dupla: videtur tamen michi quod nemo potest dicere proporcionem huius esse duplam, sicut nemo potest dicere vel intelligere quod non potest esse; ut hic supponitur ex alibi declaratis. Cum ergo prima racio mensurandi reperiatur in numeris, excludens cum precisione quantitatem ad quantitatem proporcionis, attinet errorem quemlibet secundum superhabundanciam vel

9. ar$^{c9}$ B. 16 ſſ$^{li}$ B. 21. nuõſius B. 34. eo quod B. 35. ee' B.

defectum; sic quod si A est duplum ad B, non est plus vel minus quam eius medietas; et sic de aliis
B 137b proporcionibus est senciendum. |

Consequenter restat dicere penes quid velocitas augmentacionis attendi debeat; primo tamen supponitur quod motus augmentacionis sit motus secundum quem substancia maioratur. Ex quo patet quod distingwitur a diminucione et motu locali, cum nichil diminucione formaliter maioratur, licet diminucio unius faciat ipsum vel aliud maiorari et habet tam terminum *ad quem* quam materialem quantitatem. Et multo evidencius, nec motus localis nec augmentacio est alteracio. Licet enim motus localis sit ad quantitatem continuam, quia ad locum illum, non tamen acquirit sibi [qualitatem] formaliter sive intrinsece, sed ubicacionem, que est septimum genus entis. Ideo dicunt philosophi quod tantum in 2bus predicamentis, scilicet in quantitate, et qualitate, et ubi, est motus, ut per se materiis motuum propriorum.

if A is the double of B, B cannot be more or less than its half.

*Of velocity in the movement of augmentation.*

1. It is the movement by which a substance becomes larger. This distinguishes it from diminution and local movement, and both it and the latter from alteration; for instead of different qualities, they only imply a new site acquired.

2° supponitur quod, augmentacione large accepta convertibiliter pro maioracione substancie, est aliqua augmentacio communiter dicta et aliqua proprie dicta augmentacio communiter dicta est maioracio inanimate substancie. Augmentacio vero proprie dicta est in maioracione substancie animate per corporeum nutrimentum quod sibi assimilat. Prima autem maioracio nomine rarefaccionis, et 2a nomine augmentacionis appropriate exprimitur. Et differunt, ut patet ex dictis. Nam iuxta sentenciam Aristotelis (primo De Generacione), ad augmentacionem proprie dictam requiruntur 3a per ordinem: primo, quod moveat idem subiectum a principio usque ad finem motus inclusive; sed hoc commune est cuilibet motui successivo, cum motus capit unitatem a subiecto. 2° oportet quod quelibet pars quantitativa sensibilis primo aucti secundum formam eandem sit aucta; et consimile oportet contingere in quolibet motu successive. Et 3° oportet quod fiat per alimentum cor-

2. There are two sorts of argumentation; in a wide sense it includes expansion even of an inaminate body; but it strictly means only the increase of an animal by nutrition. Aristotle says that in this movement the same subject must be increased,

that the sensible increase should bear on each part of it;

and that it should be

11. materiam B. 14. qualitatem *deest* B. 16. est (!) cutis B. 20. augm̃tative B.

9. *Diminucio faciat ipsum . . . maiorari.* As, e. g. the pruning of a tree causes it to grow more vigourously

caused by the assimilation of food.

We must remember that every individual is individuated by what causes it, and that the form which actuates a substance is indivisible.

poreum adveniens similanti; quod speciale est augmentacioni. Sed iste due posteriores condiciones habent difficultatem aput irretitos in singulis principiis. Ideo notandum, ut allibi diffuse exponitur, quod omne suppositum speciei capit individuacionem ab omni illo quo capit causacionem; et sic est dare gradus individualibus singularium secundum ydemptitatem numeralem unius vel plurium causarum a quibus individuacionem huiusmodi sorciuntur. Sed notandum quod quelibet forma substancialis mixti et specialiter anima quecunque, subiectum suum inmediatum actuans, est indivisibilis quo ad molem. Sed et illud declaratur alibi diffusius.

3. So long as an animal exists, its form remains the same, but its matter may vary,

Ex quibus 3° potest convinci quod, manente eodem animali, manet eadem forma, a qua caput vel aliud organum habet propriam quantitatem. Et per consequens, licet nova materia adveniat vel antiqua defluat, tamen manet eadem pars quantitativa in numero secundum formam, cum manet eadem forma in numero licet materia varietur. Nec exinde sequitur migracio forme vel eius incorruptibilitas alium infinitans. Quamlibet ergo partem quantitativam | primo aucti sensibilem ma- B 138
nentem eandem in numero secundum formam, oportet in aliqua parte temporis augmentari.

and must do so; increasing therefore at a certain time.

Digestion begins in the mouth and stomach; it continues in the liver and the midriff (?) whence a part is expelled into the bladder; and it terminates in the heart.

Nec obest quotlibet elementorum in humidorum inimicicias generari, cum sita prima digestione in ore et stomacho, et separato in puro terrestri ac per intestina demisso, oportet in epate celebrari digestionem secundam subtili, a quo in epato mitricori expulso a venibus ad vesicam; et 3° in corde alimento decocto, vel subtilius primo virtus regitiva distribuit per arteries et venas spiritus triplices cum sanguine membris augendis, quantum exigunt de natura. Et adhuc in venis capillaribus secundum rorem causabilium et glutinum est quantum sensibilis destillacio, et membrorum attraccio, ad motus augmentacionis ultimum complementum. Et sic semper manet membrum spermaticum aparentibus

In the capillary vessels there is an action going on which is the last compliment of augmentation.

3. unt'tos B.; *ib.* finlis B. 24. hu͡nor⁹ B. 27. tolebrari B. 28. sub$^{tili}$ B; *ib.* a͡9o B; *ib.* mit'co'i B. 33. ca͡$^{liu}$ cambium (?) B.

28. *Mitricori* and below, *mit'ti*. I have rendered this as the 'midriff', but only on account of the peculiar resemblance of sound with the word, for I have not succeeded in finding it anywhere. The whole passage is very corrupt.

contractum, humido cibali comixtum; sic quod nunquam est pars huiusmodi secundum formam ex pure cibali humido integra, sed ex humido seminali quod est subiectum inmediatum et essenciale vite vel anime. Forme quidem complexionales inducuntur in cambium, quod continuatum cum membro augmentato, nec augetur, nec membri materia; sed membrum manens idem, non secundum materiam, sed secundum formam multiplicatam per totam materiam antiquam et novam, est per assimilacionem factum maius; et quamdiu manet vis assimilativa mitriti ut membrum secundum terre dyametrum fiat maius, tamdiu manet augmentacionis potencia. Unde, sicut vis vini per aque infusionem adeo ebetatur quod non sufficiat ulterius aquam commutare; sic vis augmentativa, per infusionem cibalis huiusmodi, paulative remittitur; ut in pueris quidem propter membrum molle, commixtioni obediens, sic quod propter virtutis fortitudinem est augmentacio satis velox. Et ad terminum status augmentati, claudicante calore, assimilacionem completant, in adipem vel arvinam animam; et demum in seminio, mortificatis corporalis spermaticis, defluit cibale humidum cum humido naturali, quo usque subiectum anime sit consumptum ad imum naturale.

The semen, given by the parents always remains in the body, combined with the humours produced by alimentation; and this compound seminal humour is the immediate subject of life. The matter of the body is not itself increased; but the form (or soul) takes new matter to itself, and each member is increased by assimilation, so long as the assimilative power of the midriff remains entire. But this assimilative force diminishes as more matter is assimilated.

Et patet quod augmentacio differt a nutricione, a mixtione, et a corporis inanimati assimilacione. A nutricione, cum sit maioracio, et sic nutricio; a mixtione, cum auctum non ut sic confunditur, sed quantificatur; et ab inanimati assimilacione, quia nutrimentum digerit, preparat, distribuit, et ad sui complementum convertit. Unde, si lapis aut vinum haberet vim attrahendi humidum cibale, et convertendi ad sui conservacionem, ut habent vivencia, proprie augerentur. Nunc autem fit totum novum, et naturaliter deest virtus et organum, cum natura in [in] animatis non intendit talem finem | .

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Augmentation thus differs from nutrition as it implies it from combination, since that which is increased merely gains quantity; and from the growth of inanimate things on account of the vital changes it produces.

Ex istis tamen potest caveri error in quo quondam desipui, quod humidum cibale sit in aucto inbibitum, usque ad coextensionem alimente cum aucto; et sic humidum cibale foret eiusdem complexionis vel

It is a mistake to think that the alimentary humour is not distinguished from the being which it nourishes;

5. canibm̄ B. 11. mit'tl B; *ib.* terram B. 17. et *pro* sic B. 19. calore est B. 20. armn̄a B. 21. fcn̄o B; *ib.* mortit̄is B. 23. 9ſup̄in adim̄m B. 29. di'git = dirigit ? B. 34. animatis B. 36. in q̄uod, B.

for then man might be immortal by nature, the subject of life being indifferently the humour given by nature and that supplied by food. On the contrary, this first subject of vitality must be continually weakened by the mixture of fresh elements, until the time of dissolution comes; just as we see that corn ripens in the space of a year, but cannot be made to live longer. And there is besides an action of the celestial spheres on the human body, limiting its duration; to which some pay no attention, thinking it can be indefinitely weakened.

temperancia cum humido naturali quod natura ex propria materia et virtute informativa in matrice dirigit. Et sic posset homo pro statu lapsus naturaliter perpetuari, cum anima foret indifferens habere humidum naturale vel humidum cibale pro subiecto: quod est impossibile. Oportet ergo quod sit unum essenciale subiectum vite vel anime, cui cibale humidum sit continens, et illud subiectum oportet debilitari continue, cum commixtio sit tam tenera quod necessitatur dissolvi et ab extrinseco dissolvente et ab intrinseco; sic quod, posita optima conservacione possibili nature sic tenere, dum medium continens celum cum suis qualitatibus sic ipsam respiciant, est inevitabile quin vel ocius vel in fine sue peryodi corrumpatur. Sed sicud segetes infra annum naturaliter maturescunt, et, quantumcumque bene servate, ad ultimum dissolvuntur; sic senciendum est de homine et de quocunque animali. In quolibet enim anno solari, deditus optimo regimini, inevitabiliter veterascit. Tunc vero foret accio tardissima inter calorem naturalem et humidum $2^{m}$ mocionem celi per medium continuitatis et nutrimentum appositum instrumentaliter transmutatis, et istam mutacionem celi limitantis periodes, ex $2^{o}$ De generacione. [Hoc] pretermittunt pueri, putantes ex proporcionis equalitate, vel eius diminucione, accionem in mixto posse cessare similiter, vel remitti, vel tardari eciam ad omnino [non] gradum. Sed indubie oportet tunc prohibere celum difforme, ne sic, secundum diversos angulos radiorum variatorum in fortitudine, currat sibi opposito in circuitu, et percuciat sic varie partes mixti; et quod partes hominis uniformis mixtionis haberent continue alimentum eis adequatum: quod est impossibile propter necessitatem et omogeniarum parcium, et propter inpossibilitatem motuum quibus paulative partes alimentum attrahunt, conglutinant, extendunt.

The alimentary humours hinder this action of the spheres. If the heavens

Sicud ergo humidum unctuosum, superfusum liquori, non impedit simpliciter eius consumpcionum, sed mitigat; sic huiusmodi cibale non impedit simpliciter consumpcionem huiusmodi radicalis. Quod si celum

2. mat'ce B. 11. $\overset{r}{\text{te}}$n'e B. 13. vtia notia? B. 20. 9tis B. 23. Hoc *deest* B. 26. adom͡io; *ib.* non *deest* B. 29. $1^{n}$ fbioto B; *ib.* pertuciat B. 36. Ach$^{mo}$ B. 38. sed *pro* sic B.

staret, et elementa in homine essent ad tantam equalitatem proporcionaliter sublimata quod non dissolveretur per accionem ab intrinseco, nec egerent influencia celi ad regulandum modum sue peryodi, nec extrinseco alimento, tunc, inquam, compatitur secum, ymmo consequitur mortalis corporis ad anime unionem, non solum inmortalitas, que est dispositio cum qua corpus hominis stat non mori; sed disposicio cui repugnat mortem succedere vel coesse. De istis autem disposicionibus, quomodo sunt philosophice possibiles, est teologorum discutere.

were motionless and all elements in perfect equilibrium in man, then man could not only escape death, but death would be impossible. How far such conditions are possible, is a question of theology.

Quo potest caveri error quo creditur auctum, a B 139b principio | augmentationis usque ad finem, continue augeri. Tunc enim foret omne auctum per tempus sensibile summe magnum; quia si in quolibet eius instanti intrinseco per continuacionem cibalis humidi, eciam secundum minimum naturale, foret tanta quantitas novi corporis aquisita, oporteret ut agregatum in fine servatum excederet totum mundum. Oportet ergo quod in certis instantibus, finitis eciam nobis, licet incognitis, fiant continuaciones minutarum parcium alimenti. Et per consequens oportet quod finite mutaciones instantanee principient motum augmentacionis, quem commentator ponit componi ex multis motibus et multis quietibus. Unde superfluum est credere quod augmentacio pro quolibet instanti a suo principio usque ad finem maneat continue, cum multis morulis intercisis. Sunt motus augmentacionem preparatorii, ut alteratio, motus localis, rarefaccio, condensacio, commixtio, nutricio, et conversio alimenti: ex quibus (ut principiis) augmentacio resultat. Nullus enim illorum motuum est augmentacio vel eius pars quantitativa, sed requisite ad augmentacionem concomitans.

We must not suppose that this movement of growth is continual from first to last, for then the body would grow larger than the whole world; it must take place at certain instants, by no means infinite in number, and thus it is composed, according to Averrhoës, of many movements and rests. There are different acts which prepare it, none of which is augmentation, but a necessary accompaniment thereof.

Et quantum ad continuacionem augmentacionis temporalem, dicitur ut supra, quod ipsa est adequate per tempus compositum ex instantibus intercisis, et pro mensuris mediis non existit; in quibus tamen habet disposicionem vel potenciam propinquam ad existenciam actualem. Et correspondenter dicitur de servacione,

During the instants at which it does not take place, it merely remains in abeyance; so also of conservation.

5. ĩt iuq̃ʒ B. 6. mortalitas B. 10. coec̃ B. 18. oportet; ut *deest* B. 21. in concretis B. 23. augonis B. 28. ppato'y B. 30. nut'co B.

That augmentation can recommence after disappearing, proves nothing; for we know that undulatory movement, the act of walking, &c. are not continual motions.

que ex magna augmentacione elicitur. Nec movet quod augmentacio vel ens post sui corrupcionem reincipit; quia talia successiva, tempore discontinua, $2^{m}$ partes frequenter desiniunt et incipiunt sicut continua, licet non possint, postquam totaliter deficerent, reincipere eadem in numero. Nec illud negabitur circumspecte ab aliquo qui concedit tremorem, sonum, saltum vel motum aliquem ex reflexis motibus agregatum. Sicud ergo progressus vel saltus per stadium requirit multas quietes interpollatas requisitas primarie ad partes posteras, et ex omnibus illis fit una progressio agregata seu cumulata; sic proporcionaliter de augmentacione est ponendum. Unde, qui negat talem motum, negare debet omnem sonum, omnem populum, et acervum. Evidencias autem que videntur in oppositum militare, facillimum est deceptis solvere.

It is a collective entity, like sound, or a people, or a heap of things.

*Objections.* 1. A movement, past or future, is non-existent. 2. Every movement must either be continuous, or not be at all. Our system solves these very easily. 3. If a movement does not exist at a given instant, its contrary exists then; two contraries in the same subject. But two contraries can exist in their time and place. 4. We must guard against thinking that the subject of the augmentative force is a continuous quantity. It is said that if it were so, no increase would be possible.

Primo quidem creditur, sed nimis erronee, quod motus in instanti preterito vel futuro eo non est quod in hoc instanti deest. $2^{o}$ false creditur quod motus talis non est nisi secundum quamlibet eius partem sic vere continuus. Sed hoc non sapit vere ponentibus composicionem continui ex non quantis, et ponentibus omne totum ex partibus esse collectim, omnes illas quantumcunque fuerint separate. $3^{o}$ probatur erronee quod, si motus pro dato instanti non fuerit, pro hoc tunc est quies sibi opposita; tunc non similiter vel si est, sicud et quies; et, quia motus et quies sunt contraria, tunc eidem subiecto duo opposita | simul insunt: B 170b ignorando quod duo opposita, sicut suis temporibus, sicut et suis locis, utrobique sunt sic simul.

Quarto, caveri debet de subiecto motus augmentacionis, ne credatur ipsum esse mole continuum aut quantum. Condam enim putavi istam racionem demonstrative procedere per omnem partem antiquam aucti est quies augmentacionis continuencia, et per omnem partem assimilacione alimenti noviter generatam. Est eciam continue augmentacionis privacio, quo ad omnem punctum augendi, est continue augmentacionis privacio, et per consequens non est possibile aliquid augeri; cum hoc oporteat, si aliud debet augeri, oportet

2. mlens *pro* vel ens B. 16. ddeceptᵉ (?) B. 26. tn̄ B. 31. c'cō *pro* quarto B. 32. aut non B. 37—39. Est - et (!) B.

quod per totum sit continue non gradus talis motus. Nec valet dicere quod aliquis motus multiplicetur; quia per idem quilibet; et sic per idem nullus foret difformis quo ad subiectum; sed habens motum non movetur, cum motus quilibet sit ubique. Et hic oportet notare minimum subiectum augmentabile, et per ipsum oportet intelligere gradum augmentacionis mole indivisibilem multiplicari, ut dictum est de aliis formis, que individuacionem suscipiunt a subiecto, et quotquot sunt partes huiusmodi primo aucte, tot sunt augmentaciones mole indivisibiles que constituunt totum motum.

But the smallest possible subject of this force implies that one indivisible degree of augmentation can be multiplied, like all other forms individuated by their subjects.

Unde, ad cognoscendum fundamentum huius materie, oportet scire quod parcium hominis sunt quedam simplices, et alie ex eis composite. Simplices autem spermatice sunt os, cartilago, et ligamentum, nervus, arteria, et vena; et quandoque non spermatice, ut caro, pingwedo, adeps, auxongia, villus. Et ita sciendum de medulla, pilis, et ungwibus, que ab aliquibus vocantur membra, et ab aliis partes superflue. Cuiuslibet enim talium quelibet pars quantitativa per se sensibilis [est] eiusdem racionis cum toto. Ideo dicuntur simplices quo ad alias quantitates. Unde vene, corda, panniculus, et cuncta que sunt mere spermatica, musculus et lacertus, que sunt partim spermatica dicuntur consimilia; quia multum accedunt ad omogeneitatem membrorum simplicium.

Certain parts in man are compound organs, and others are elementary tissues. To the first belong bones, cartilage, tendons, nerves, arteries and veins; also flesh, fat, and villi; each part is of like nature with the whole.

Membra autem composita sunt, que ex istis quantitative specialiter componuntur, et ex illis integrantur: membra officialia, intrinseca et extrinseca; ut cor, cerebrum, epar, testiculi, caput, brachium, tibie, cum sibi similibus. Post $3^{s}$ quidem digestiones, generatis $4^{or}$ humoribus et $3^{bus}$ spiritibus, augentur tres manieres membrorum constancium. Sed membra simplicia et membra consimilia, membra composita communiter; et cum quodlibet istorum membrorum habent quotlibet

To the second belong organs composed of the first, as the heart, the liver, the testicles, the head, the arm, the thigh, &c. The latter are augmented by digestion, but the former have many parts that cannot be augmented.

9. quodquod B. 10. aucta B. 16. vere *or* non (?) B. 17. auxugi B. 21. est *deest* B. 23. paniclus B; *ib.* cunctis B. 34. 9ut' B. 35. habet B.

15. It is not easy to understand what Wyclif means by *spermaticus*. Possibly the word signifies those tissues, that (as he supposes) have been formed directly from the semen; and then we must understand in the same sense the expressions 'membrum spermaticum', and 'humidum seminale' which he says is the first (or direct?) subject of the augmentative force.

partes quantitativas (quia elementa) que non potuerunt augeri; sicud ubique est non gradus motus nature inmobilis, et tamen ubique est motus mundi. Sic ergo ubique per subiectum primo auctum est augmentacio, cum uniformiter quelibet pars quanta primo aucti pro tempore augmentacionis augetur proprie; et per consequens habet in se augmentacionem | huiusmodi successive; vel aliter est principium intrinsecum ita aucti, et tunc habet augmentacionem multiplicatam per se totum. Et patet quod assumptum argumenti peccat in materia, cum multa membra antiqua augentur, et per consequens partes quantitative inaugmentabiles non subiciantur quieti ab augmentacione, cum eius oppositum non sit natum formaliter inesse. Conceditur tamen quod tam per partem novam quam per partem antiquam est augmentacio modo suo, et simul cum hoc eius privacio, sicud Deus qui natus est inesse menti per graciam, deest menti peccatrici ob eius culpam, licet assit secundum eius essencialem conservanciam. Sic augmentacio deest elemento secundum formalem et denominativam inherenciam, licet insit secundum naturalem causanciam. B 140a

Everywhere increase takes place by means of the first subject of augmentation, without its being necessary that the rest should increase in itself.

Yet the rest increases in one sense, though it does not in another; as God has essential presence in the soul of the sinner, while He is absent from it by His grace.

Et quo ad velocitatem motus augmentacionis, dicitur quod attenditur penes quantitatem aquisitam primo aucto, in comparacione ad tempus. Non enim est continue nova quantitas per totum, ut sompniavi quando negavi composicionem continui ex non quantis. Et proporcionaliter dicendum est de rarefaccione. Illud enim rarefit velocius quod per equale tempus vel minus occupat cum corpore inbibito plus. Et tantum de situ corporeo. Et de tempore notandum est primum instans et ultimum; et in mediis instantibus dicendum est motum esse, vel $2^{m}$ existenciam mutari, aut mutatum esse, vel secundum disposicionem aut potenciam propinquam in suis causis proporcionaliter, sicud motus dicitur inesse corporibus.

The rapidity of increase is measured by the size acquired, and the time taken; so too for expansion.

Time is indicated by the first and last instant; during the interval the action is going on but not complete.

Et de istis incidit tractandum de velocitate motus alteracionis. Sed primo, supposita communi noticia

*Of Alteration:* its velocity. Properly speaking, this

3. S$^{c}$ B. 26. nowa B. 33. exuaȝ B.

37. *Alteration* often sounds badly here, hardly agreeing with the usual English sense of the word; but the other expressions — change, mutation, modification, &c. — do not render the precise meaning any better. It is a *material*, but not *substantial* change.

de alteracione, quod est et quid est, notandum quod solum substancia sensibilis est proprie alterabilis, cum totum genus motus successivi sensibile commune sit. Substancie autem sensibiles, ut forme et materie; et intelligencie sunt alterabiles alteracione communiter dicta, acquirendo bonitates, sciencias, et alias qualitates spirituales non habentes contraria, sed privative opposita. Sed fundamentaliter cognoscendo substanciam alterabilem, oportet cognoscere materiam vel formam et earum composicionem, cum substancia sit prior accidente, cognicione et definicione et tempore. Quo ad noticiam, ymaginandum est igitur unam essenciam corpoream, in principio productam, esse ex indivisibilibus composita, et occupare omnem locum possibilem nec esse secundum eius partem aliquam corruptibilem, nisi forte per divisionem vel separacionem unius partis a reliqua. Sed cum oportet illam totam essenciam habere quamcunque partem talem aliqualiter continuatam, patet quod illa essencia simpliciter est incorruptibilis; et illa essencia primo fuisse concipitur sub racione qua ens simpliciter, et nec ut ignis vel aer, vel cuiuscunque alterius generis vel speciei; quomodo gramatici dicunt pronomen singulare meram substanciam. Sed philosophi, ulterius considerantes, B 140[b] quamlibet | talem essencialem essenciam esse unum absolutum cui per se competit substare accidentibus, tribuunt sibi substancialitatem. Et post modo, considerata eius extensione, attribuunt sibi corporeitatem quam Linconiensis vocat lucem. Et 3° formam generis proximi, ut animalitatem, lapiditatem vel aliud huiusmodi. Et quarto, considerata racione sufficienti, attribuunt sibi forma specialissimam; ideo dicunt philosophi quod substanciarum alia materia, alia forma, alia compositum ex hiis. Unde substancia corporea, que est genus, non univocatur, nisi et composicione ex materia et forma. Sed quando loquimur de materie et forma tantum, vocamus ipsas ipostases, vel naturas, vel supposita.

being a successive movement, only matter can be altered; but intelligent beings undergo alteration in a wide sense.

There is one material essence, created in the beginning, composed of points, filling all space, and incorruptible, except in so far as one of its parts may be separated from another. We conceive that this essence was firstly mere being, just as the singular personal pronoun denotes mere substance. Philosophers call it substance or body because of its extension. Matter, form, and compound, are different sorts of substance, but this corporal substance is of the same nature as the compound.

Considerando ergo specialiter partem sublunarem mundi esse in potencia ad *esse* ignem vel aerem (vel sic de aliis sensibilibus corporum), posuerunt potenciam

Restricting our speculations

25. quamlibet *twice* B. 29. luce B. 35. composicionem B.

to the sublunary world we see that every part of it *may be* fire, air, &c.: this possibility is *matter* —; fireness, airness, &c. is *form;* and the resulting whole is fire, air, &c. Each are different and all three are the same essence. Matter is the first out of which necessarily proceeds form; nor can form be without matter; nor can the two be without the compound.

esse talem materiam; et igneitatem, aeritatem vel lapideitatem (et sic de aliis), esse formam. Et compositum qualitative ex hiis, quod est composicio, vocant ignem, lapidem, vel aliquod tale. Et istam potenciam eternam, que nullam speciem corporis sibi determinat, vocant materiam primam, fundamentum nature, vel, secundum grecos, ylen; et formam dicunt subsistenciam vel usiasim; compositum vero ex hiis vocant superstans. Quarum quelibet differt a reliqua, et omnes ille sunt eadem singularis essencia; ut materia prima, vel potencia dicens relacionem ad formam vel actum, est primum horum trium, ex quo procedit actus, cum claudit contradiccionem quod talis materialis potencia sit sine forma vel actu, sicud econtra claudit contradiccionem aliquam formam corpoream fore sine materia; et claudit contradiccionem illa duo reponi, nisi sequatur ex hiis composicio vel compositum, quorum trium quodlibet est eadem essencia singularis vel essencia corporea.

I grieve to have once fancied that matter and form were absolute separable realities, forming a compound by mixture, like two liquids, with supperadded accidents: I repudiate this opinion. Every bodily substance is not one, but three.

Unde, inter alias occupaciones varias quas habui, doleo de solicitudine mea superflua, ymaginando formam et materiam esse absolutas res quarum utramque posicionem existere per se, et ex illis coextensis resultare unum ad aliqualem motum quo duo liquida ymaginantur ad invicem commisceri. Et illis superaddidi accidencia, tanquam res abstractas que possunt per se existere; sed procul a me ista posicio! Quelibet ergo talis substancia, vel corporea essencia, est trina, et per consequens non ultimum singulare, cum sit multorum singulorum, scilicet materia et forma et earum connexio ad invicem, que vocatur complementum, composicio, vel quietacio aut finis intrinsecus.

Plato's opinion, admitting that the same matter (or essence) is now fire, now air, &c.,

Sed diversimode locuti sunt philosophi in illa materia; ut Plato voluit | concedere eandem materiam vel B 141[a] essenciam quam appellavit hylen, tenebram, vel caos, nunc fore ignem, nunc aerem, et sic de ceteris elementis ac mixtis; quia in nulla accione nature superadditur negativa essencia absoluta 2[m] totum, eo quod generacio esset tunc creacio, et corrupcio esset annichilacio. Et est sentencia huius viri satis bona sicut et sentencia philosophorum ponencium latenciam

is tolerable,

7. ypostasim *in full pro* ylen B. 21. ydo B. 23. poit^om B. 24. motu B.

formarum, negancium generacionem esse in corporibus, sed solum alteracionem.

Sed sermo Aristotelis est michi placencior, quia materia est eterna cum illa essencia, sed forma et compositum simul inceperunt. Et sic salvatur generacio substancie, et tollitur annichilacio cum creacione forme extense.

but I prefer Aristotle's, stating that matter is eternal, but that form and compound began simultaneously.

Sed contra illud tripliciter argumentatur: primo per hoc quod cuiuslibet corporis materia et forma sunt partes integrantes, et per consequens non ista tria sunt eadem essencia singularis, cum totum sit perfeccius quam aliquod elementorum suorum. Similiter, expositorie sequitur quod quelibet talis substancia generata fuit eterna a parte ante, creata in principio instanti temporis, eo quod tam essencia quam materia, que est idem corpus, sic se habent; et ex alio latere sequitur quod tam essencia illa quam materia sunt naturaliter generabiles et corruptibiles; quia tam forma quam compositum est corruptibile, et utrumque illorum est essencia illa: ergo, illa essencia est corruptibilis. Similiter, iuxta illud sequitur quod generabile est ingenerabile, corruptibile incorruptibile, sive sensibile insensibile, calidum non calidum; et sic de quotlibet oppositis predicatis. Nam illa essencia est ingenerabilis, incorruptibilis est, et generabile, et corruptibile; quia illud compositum quod incepit esse per quantumlibet; quia tempus post illam essenciam; et alias corrumpetur, illa essencia manente. Et conformiter patet (cum ignis sit calidus, et materia prima eius non calida), si essencia eadem sit utrumque, tunc calidum est non calidum: et sic de aliis oppositis.

Three arguments *contra*.
I. Matter and form are parts; they cannot therefore be the whole.
II. On one hand everything is eternal, if matter is so, for it is identical with the rest; or on the other, on account of this identity, matter is corruptible.
III. And we have all sorts of contradictions together, if the *same* essence is matter, form and compound.

Quantum ad primum dicitur quod prima consequencia non valet, sed bene sequitur quod illa tria differunt ab invicem; quod verum est. Sicut igitur pars quantitative differt a suo toto, tam quo ad singularem essenciam quam quo ad suppositum (sed pars quantitativa est simultanea); sic pars qualitativa mediat in hoc, sed differet a suo toto, sed est eadem essencia.

*Answers I.* Matter and form merely differ among themselves, and from the whole as an integral part, which is the same essence as the whole.

Differt autem iste modus trinitatis a trinitate anime et a trinitate que Deus est, specialiter in hiis tribus.

This is a sort of trinity; but the distinction

4. ſ̄ B. 14. app$^{u}$ B; p̄u$^{o}$ B. 33. unde *pro* sed bene B.
37. ſim̄t$^{am}$ B.

between it and that of our soul or of God is threefold. 1. Matter is eternal; form and compound exist in time; whereas in the other Trinities all three must coëxist. 2. In God nothing, in the soul, no agent but God, has an external influence on the emanation of one from the other; while for bodily things it is otherwise. As for those who say that matter and form, essence and body, can be separated, and that combination is a mere accident, let them enjoy their discovery. 3. Form is more perfect than matter, and the compound than either; whereas in the other trinities, all three are equally perfect. II. We deny the conclusion; logical sequence is wanting, there being four terms to the syllogism. Nor does it either follow that matter is generable or corruptible. Of what species then is this essence? Sometimes of one, and sometimes of another;

Primo, in hoc quod claudit contradiccionem aliquod suppositum illius trinitatis esse non coevum cum quolibet eorum. Sed hic primum est eternum, et utrumque $2^{orum}$ coevum et corruptibile. $2^{o}$ in hoc quod primum suppositum per se est, producit continue $2^{m}$; et illa ambo tercium ad intra, sine aliquo cum producente alio in Deo, et sine aliquo preter Deum a producente in anima. Sed primum suppositum in trinitate corporea est potencia susceptiva, non potens actuari sine extrinseco efficiente; sed illis positis, sequitur | $2^{m}$ formaliter de natura rei. Qui autem dicunt quod forma potest exui a materia per se, siccud essencia a corpore, dicunt quod composicio est accidens utrique compositorum, cum forma prius creatur quam producitur a natura $2^{a}$. Sed gaudeant illi de invencionibus suis, quia puto me scire quod nunquam probabunt materiam vel formam esse res distinctas ab essencia que est illa $3^{a}$. $3^{o}$ in hoc differt illa trinitas ab aliis supradictis, quod in ista $2^{a}$ res est perfeccior, quam $1^{a}$ et eius finis; et $3^{a}$ est perfeccior quam priores, cum sit finis eorum et sic reciproce causant se in diversis generibus causandi. In trinitatibus vero prioribus tollitur omnis accidentalitas unius ad aliud, omnis excellencia in perfeccione vel bonitate vel accione ad extra, omnis reciproca causacio, et inequalitas in aliquo attributo. B 141b

Ad $2^{m}$ argumentum negatur conclusio et aliud argumentum factum ad probandum illam; sicud non sequitur: hoc *esse* fuit eternum, et hoc *esse* est ignem esse: igitur, hoc *esse* ignem fuit eternum. Igneitas autem (et per consequens ignis) inceperunt esse quando incepit esse quod *hoc est ignis*. Et per idem non sequitur quod materia illa vel natura generatur aut corrumpitur, quamvis illud compositum sic se habet, et sic de syllogismo expositorio. Et si queratur cuius speciei est illa essencia, dicitur quod nunc est individuum unius speciei et nunc alterius; et tunc individuum non potest sic mutari; ab essencia enim procedit individuum, cum sit esse substanciale essencie, ut essencia ut huiusmodi est in aliqua specie. Ideo dicunt autores quod ipsa et materia non possunt demonstrari, nec sunt quid, nec quantum, nec quale, nec

3. h' p'm B. 4. quid(!) B. 26. ad *pro* aliud B. 34. et B. 39. *before* essencia nec *pro* ut (?) B.

aliquid aliorum encium. Plato tamen demonstravit illam, quod illa nunc est individuum unius speciei, et nunc alterius, quod est verum. Nec sequitur ex hoc quod ignis erit aqua: et sic de ceteris.

as Plato says. But this does not prove that one element will be another.

Et istis est quodammodo simile illud quod antiqui sapientes theologi dicunt de incarnacione Cristi, ponentes quod due nature sunt unum suppositum, sicud una natura est $3^{a}$ supposita; et illarum naturarum una est eterna (ut divinitas) et alia temporalis (ut humanitas). Nec sequitur verum incepisse esse, desiisse, vel factum defuisse, etsi illa natura *que est* verbum sic se habet. Conceditur tamen quod ille homo qui est verbum, est tempore creatura factus, minor patre; et sic de quibuscumque que conveniunt illi humanitati. Et cum verbum sit illa humanitas, ipsum est unum factum, una creatura; et sic de ceteris predi-
B 142ª catis per se substantivatis, et non de predicatis | temporalibus substantivatis signo proprio verbi. Et sic deitas est homo, sed non humanitas; sic verbum assumpsit hominem, quia humanitatem, sed non personam. Cristus tamen, qui est persona, est vere assumptus, sicud allibi diffuse declaravi. Non ergo sequitur: *illa essencia est generabile et corruptibile naturaliter*: ergo, *sic generabilis et corruptibilis*. Nam essencia significat absolute, ante eius genus, rem integram, sed natura significat concrete materiam vel formam, vel $3^{o}$, integram essenciam esse hic vel illud in speciali.

The Incarnation is a case in point Christ is two natures, and one person;

The Word did not begin, nor end; yet the nature *which is* the Word did. The Man who is the Word is a creature, and thus the Word is in this sense a creature too. Deity is man, but it is not humanity, for the Word did not take upon himself the person of man.

Ad $3^{m}$, patet ex supradictis quomodo unum oppositorum predicatur de reliquo, et quomodo non. Nota tamen quod materia prima nec est calida nec est frigida; et sic de aliis denominacionibus accidentalibus, quamvis sit subiectum remotum huiusmodi qualitatum. Omnis namque qualitas est forma qua subiectum est formaliter accidentaliter quale; et sic est subiectum

III. We have already pointed out how contraries can be predicated of the same. But primordial matter is properly neither hot or cold, &c.; qualities are accidents

18. videtur (?) *pro* verbi B. 20. pam B. 21. pa B. 24. non tamen (?) *pro* nam B. 25. ems B. 26, 27. in tege B.

3. *Nec sequitur.* Wyclif's position will perhaps be clearer, if we state it in modern terms. The same essence that is now a mere mixture of oxygen and hydrogen, will be water; but it does not follow that water is a mere mixture of oxygen and hydrogen. Admit (as some chemists do) that there is only one primordial element, and Wyclif's assertion can extend to everything.

belonging to substantial form; so matter is not directly their subject. They cannot exist by themselves; for there are bad qualities, which then would be created by a bad Principle.

esse quale, et non res que potest per se esse. Nam universaliter infirmitas, vicium et talia ponuntur qualitates; que si per se essent, haberent deum malum causam eorum. Ideo omnis qualitas, quantumcunque realis, ponit subiectum esse quale accidentaliter, sine pluri preter illa que consecuntur ad hoc: ut lumen potest esse *subiectum capax esse dispositum ad videndum visibile per aspectum luminosi;* et illa disposicio vocatur lumen, sive sufficiat ostendere se ipsum distincte (ut disposicio in mixto terminato, que vocatur lumen reflexum); sive sufficiat confuse ostendere se et suum subiectum; ut disposicio in medio dyaphano ad ostendendum visibile extra medium, sicud que dicuntur species lucis, que lumen dicitur, vel species illud que similando coloris appellatur. Lux autem est forma substancialis in per se lucido, vel accidens inseparabile, cum in aliis sit accidens, et *lucere* est eius actus, et fervor est terminus in quo quietatur. Unde videtur michi quod illa que quondam credidi de migracione luminis et de eius realitate sunt inpossibilia. Stat tamen luminosum applicari medio et non illuminare illud, vel per indisposicionem luminosi vel medii suscipientis vel medii intercepti.

Light is the fact that a seeing subject can see a visible thing by means of something luminous and is either reflected or transmitted. It is inseparable from the luminous thing; and I was once in error when I believed that light could pass from one subject to another.

Heat is *the being hot* of a subject; but *hot* has different meanings. 1rst Having a natural property to create the feeling of heat and disagregate bodies: as fire. 2rd. Having this property only imparted and not natural; as a body in which there is much fire.

Et sic caliditas est *subiectum esse calidum.* Hoc tamen intelligendum est equivoce; ut ignis est calidus 2m naturalem proprietatem, cum ex iuxtaposicione et situ atthomorum vel incognitam habet efficaciam immutandi tactum, calefaciendo et disgregando. Et ex talibus modis miscendi atthoma habent lapides terre, nascencia et alia mixta specificas sufficiencias, virtutes, vel potencias occultas, que qualitates dicuntur. Sed secundo dicitur aliquid participative calidum, de quanto est mutativum tactus, ut mixtum igneum, quod non oportet ad omnem punctum habere ignem, sed sufficit quod spissius habeat quam sensus sufficit discernere: ut est aer eque calidus ut ignis; nec ignis natus est plus calefacere | aerem naturalem, cum deficit sibi B 142b capacitas. Omnia igitur que sic sunt calida, dicuntur formaliter calida a caliditate in actu. Alia autem sunt efficienter aut virtualiter calida que habent efficaciam calefaciendi a remotis, et tamen non immutarent

The two preceding are *formally* hot. If a body not hot itself, produces heat from a distance (as the sun)

10, 11. refluxum B. 27. fi$^{ta}$ B; *ib.* $\widehat{19}$gta B. 32. aliud B. 35. ff,ous B.

tactum calefaciendo, etsi tangantur: ut sol et alia astra. Sed potencia, virtus et sufficiencia a qua calefaciunt, non vocantur caliditas, sed una qualitas supereminencior. 3° modo dicuntur aliqua calida quo ad efficaciam quam habent calefaciendo corpus animalis. Et hoc dupliciter; vel ut sunt immutativa gustus, ut piper, galanga, et alie species: que certe calefactive immutant gustum et non tactum; vel ut sunt mutativa complexionis $2^{m}$ humores generatos ex illis; ut unum dicitur apud medicos calidum et siccum, quamvis tactui sit frigidum et humidum. Et conformes sunt divisiones de frigido, et humido, et sicco. Ex quibus patet quod stat equivocando in denominacionibus calidum esse frigidum, humidum et siccum; et unum reliquo calidius tot modis potest dici, quot modis dicitur calidum.

this is not heat, but a superior quality. 3rd Having the power to produce heat in the animal body; either in the taste (as pepper and ginger), or in the internal humours, as certain medicines.

*Cold*, *Wet* and *Dry* have similar meanings.

Notetur ergo denominacio univoca subiecti, et videatur quante distant lateraliter gradus denominacionis a non gradu; et penes hoc mensuretur intensio qualitatis; et penes intensionem qualitatis mensuretur intensio corporis simplicis, ipsum primo subiectantis. Et in mixto habente qualitates contrarias, oportet notare excessum dictum unius qualitatis supra alia, ut quidam asserunt; et penes illum excessum in comparacione ad subiectum primum, attenditur mixti intensio. Et quo ad velocitatem notant latitudinem qualitatis acquisite vel deperdite $2^{m}$ se totum subiecto suo toto primo; et penes illam in comparacione ad tempus attenditur velocitas alteracionis. Et illi dicunt quod, sicud non omne corpus est eque longum vel latum, sicud aliqua eius pars; sic nec qualitas quo ad eius extensionem. Et sicud pars qualitatis est disposicioni ad operandum proporcionaliter ad eius magnitudinem quam totum in comparacione ad eius magnitudinem, sic pars qualitatis est suo toto intensior. In aliquibus tamen formis difformibus non oportet partem excedere suum totum; quia tanta est accucies lancee, quanta est acucies sui cuspidis; et sic est de motu et aliis que non habent formas positivas vel privativas inpedientes, accidentes denominare suum subiectum remotum eque intense sicut suum subiectum primum.

We must in researches keep to the same meaning, when alteration occurs, and see by how much one degree of a quality exceeds another of the same. Some say that in compounds we should note the excess of one quality over another. As for velocity, they note the time and the extent of the quality gained or lost. They say that qualities differ in extent, so that the more extended the subject, the greater the quality in proportion to its intensity in each part: with certain exceptions.

1. tangatur B. 12. f'udo B. 17. lati$^{ter}$ B. 18. intencio *and so on* B. 21. habentes B. 38. p'uatinas B.

But I think that the quality of the whole always depends on that of each part;

Sed michi videtur probabile quod generaliter omne difformiter qualificatum, vel intensum quo ad subiectum, est tantum intensum sicut aliqua eius pars quantitativa usque ad minimam partem cui gradus secundum molem indivisibilis correspondet. Et sic | mixta dicuntur B 143ª calida, frigida, vel humida, vel sicca, equivoce quodammodo respectu simplicium; cum qualitates ille remisse resultant ex mixtione simplicium ex quibus resultant. Et minimum naturale habet unam qualitatem 2$^{am}$ mole indivisibilem; quia per subiectum multiplicatam. Et nulla pars eius est adequatum subiectum huius qualitatis. Et sic videtur caliditas ignis, que est in genere suo intensior caliditate aeris que est disparis speciei; sicut siccitas terre in genere suo est intensior frigiditate terre. Manet autem in transicione subiectorum illud genus propinquum qualitatum huiusmodi, et idem secundum subiectum essencie extra genus, non autem secundum idem individuum substancie. Et sic, racione raritatis aut densitatis, est unum elementum disposicius converti in sibi proximum quam in aliquid plus remotum.

so that each smallest possible part has a certain degree of quality, which is inextended, belonging entirely to the whole and partially to each part.

Qualities may vary in their manner of action, so that for some purposes heat in iron is more active than in fire, &c.

Nota eciam quod qualitates, tam prime quam secunde, suscipiunt multas denominaciones 2$^{m}$ manieres accionum: ut calor in ferro est in aliquo activior calore ignis puri. In aliis autem calor humidi ignei; et sic de aliis qualitatibus, vocatis wulgariter primis, sicud mixta imperfecta vocantur communiter elementa. Nec peccat suasio Aristotelis quod sunt quatuor elementa secundum combinaciones 4 qualitatum. Sufficit enim quod iste 4$^{or}$ coniungaciones non aut contrarie, sed omnes alie coningaciones qualitatum primarum faciunt contrarie. Ideo solummodo insunt in mixtis; nec attenditur proporcionalitate absolute penes intensionem vel multiplicacionem huiusmodi qualitatum respectu passi, quam proporcionem motus alteracionis consequitur, sed penes sufficienciam huiusmodi qualitatum ex disposicione subiecti, ex influencia et aspectu celi, cum

Aristotle s position, that the four elements result from the combinations of the four qualities, is quite right, for there is no contradiction among these qualities, thus combined.

14. frigiditati B. 15. tru͞one fiblor͡e B.

28. It ought to be rather: *6 qualitatum;* or, if we do not admit the negative qualities, *3 qualitatum.* Thus: *Earth:* heavy, dry, and cold. *Water:* heavy, moist, and cold. *Air:* light, dry, and cold. *Fire:* light, dry, and hot. Perhaps 4 should be read as grammatically belonging to *combinaciones.*

similibus actuantibus accionem propter proporcionem voco ydoneitatem ad agendum. Et sic potest eadem qualitas dici intensiva quo ad denominaciones et acciones multiplices.

Nec obest idem inanimatum alterari per tempus, cum essencia manet continue in quotcunque minucias sic divisa, et mixtum (quod est illa essencia alterata) licet quodlibet eius indivisibilia corrumpuntur; quia pars illius mixti que remanet secundum disparem mixtionem recipit quotlibet qualitates $2^{as}$; et illud mixtum alteratur $2^{m}$ partem. Et quandoque manet essencia composicione [ut in] fumo, igne, aqua, terra, et aere; quandoque non manet, illa divisa. Et sic simplicia mixta possunt variare mixtionis gradus, stante eadem forma, quia aliter non haberet mixtum permanenciam agendo vel paciendo.

An inanimate thing may continue the same, yet altered to a certain extent, because its essence remains. Sometimes the essence of each element remains in combination, sometimes separate and there may be various degrees of composition.

Unde, pro leviori locucione in illa materia, notandum, secundum modum loquendi Platonis et scripture, quod essencie possunt accipere denominaciones $2^{m}$ species diversas. Et sic concedi potest quod ignis est
B 143b aqua, terra, et sic de quotlibet speciebus. Vel | si peripateticus ob favorem Aristotelis hoc negaverit, tunc potest primo supponi totum esse suas partes. $2^{o}$ quod omnia, preterita vel futura, sunt. Et $3^{o}$, quod quicunque numerus corporum sit corpus. Quibus suppositis, potest dici quod corpus successivum, ex partibus viccisim generatis compositum, alteratur et recipit quantumlibet dispares denominaciones $2^{m}$ partes huiusmodi, licet non sit aliqua earumdem. Ut, ponente quod agregatum, ex corporibus quantumlibet disparium specierum successive generatum, apponatur combustioni, tunc illud corpus successivum durat in calefaccione aut combustione in casu per quotlibet annos. Sic enim dicit Aristoteles ignem crescere per apposicionem combustibilium infinite. Et ita secundum polliticos manet idem collectivum, et eadem aqua mediterranea; et $2^{m}$ Aristotelem idem manere eternum, que diversimode in

We may, in this matter, follow Plato and Scripture, and say that fire is water, earth, &c. Or, not to contradict Aristotle, note that the whole is its parts; that what *is* past or future, *is*; and that a collection of bodies is a body. If so, a body composed of different successive parts can receive different qualities, and remain the same; thus a succession of combustibles burned is one body that can continue burning for years, the Mediterranean changes and remains the same sea,

12. ut in *deest*; ignis fumus; *ib.* aer B. 14. mixtio$^{nis}$ B.

2. *Ad agendum.* Some words are evidently wanting here.
5. *Inanimatum.* This paragraph deals with the difficulty of reconciling identity with change in non living things. The identity of the soul, or form, as Wyclif has above pointed out, obviates this difficulty for living things.

and things that are altered in their parts remain one eternal being. Yet I do not see that this can apply to the denominations of *small* and big.

suis partibus alterantur. Non tamen video quod idem corpus stet simul quantumlibet parvum et magnum diversifieri, sicud est simul $2^m$ partes dispariter qualificatum; quia quantificacio respicit totalitatem sicud parvificacionem uniformitas; et sic de aliis multis, de quibus non sequitur: *hoc est uniformale magnum vel parvum* (et sic de ceteris denominacionibus condicionatis) *$2^m$ partem: ergo hoc est similiter huiusmodi.* Sed de qualitatum denominacionibus, concedimus hominem esse album, quia secundum partem, ut faciem. Sed tamen negamus hominem esse sic parvum vel magnum ut facies; quarum denominacionum distinctionem relinquo posteris.

We can say that a man is white, but not that he is big, because his face is so.

Neither matter nor form is hot (calida), but that both the primitive essence and the ultimate compound is *that which is* hot (calidum). If it were possible for heat to exist by itself as a form, it would indeed be hot; but this is impossible. A difficulty: how, if fireness can be either present or absent from a given body, can it be a substantial form? Every substantial form is accidental as concerns primordial matter, but it is itself a substance. The substantial form is what primarily

Redeundo igitur ad proposicionem dicitur quod nec materia prima nec forma est calida, sed tam essencia quam compositum ex materia et forma est calidum, sicud compositum per se generatur et corrumpitur; quia taliter eadem oportet habere, tam materiam secundum quam subiectat calorem, quam formam quam consequitur calor, a qua est subiectum calefactum. Et si dicatur quod calor per se existens foret calidus et calefactivus; ergo, non oportet calidum dicere tam materiam quam formam tamquam eius principium: hic dicitur quod claudit contradiccionem caliditatem esse sine subiecto: ideo, si sic esset, tunc calefaceret et non calefaceret; et econtra, quidquid volueris habere. Sed conceditur calorem vel caliditatem esse calidum, sicud quantitas quantum. Sed tunc supponit terminus concretus similiter, ut patet allibi.

Ulterius queritur quomodo igneitas (et sic de qualibet forma substanciali extensa) non sit accidens, cum denominat illam essenciam accidentaliter formatam, eo quod talis forma potest sibi advenire et abesse preter eius corrupcionem. Huic dicitur quod omnis forma substancialis est accidens materie prime et illi essencie, sicud et humanitas est accidens verbo; utrumque tamen est in se substancia, licet diversimode, et per consequens nulli inherens. Sed nulla essencia, sub racione qua essencia, dicit vel genus vel speciem substancie, cum oporteat | hoc fieri per substancialem substancie B 144a

2. sit B. 3. dim'fi' B. 4. ꝑtolitatē B. 5. ꝑpuifi° B. 6. uniforē B. 7, 8. ꝑtolit° B. 16 aꝫm (?) B. 14. Reddendo B. 26. frigefaceret B.

qualitatem, ut igneitatem, vel lapideitatem. Unde, per hoc quod est ignis, est species substancie; quia non est dare aliquam substanciam, speciem, vel qualitatem substancie prius inexistentem illi essencie cui accideret igneitas. Sed illa est prior quam caliditas, levitas, siccitas, vel aliud accidens in communi. Ideo est substancia faciens subiectum aliud, et non aliquantum, vel aliqualem, vel alicuiusmodi formaliter. Ideo, quecumque forma prius naturaliter inexistit illi essencie, est substancialis forma; et alie naturaliter consequentes sunt accidencia. Omne ergo formale quod nulli subiecto accidit, nisi materie prime, est substanciale; et composito ex tali et materia accidunt accidencia tanquam substancie alicuius certe speciei. Unde 2^m^ gramaticos, *esse* vel essencia dicit substanciam meram, modo quo pronomina et verba substantiva substanciam meram significant. Sed quilibet terminus in genere per se supperaddit qualitatem propriam vel convenientem.

classifies a being in its proper species: for we can conceive nothing substantial or qualitative prior to fireness in a body; and it is itself prior to everything else.

Every form that determines only primordial matter, is substantial; all others are accidents. *Being* denotes the substance; generic terms add qualities.

Sed adhuc obicitur de induccione forme elementaris, quomodo qualitates prime inducuntur, et tam dispariter consecuntur formas elementares, nec non et [quomodo] elementa sunt tam dispariter activa. Sed pro isto dicitur quod elementa, sicut et omnia corpora, habent certas regulas agendi et quomodolibet aliter se habendi, limitatas sibi a natura: ut ignis, sicud est purissimum et perfectissimum elementum, sic est maxime activum, et minime violenter susceptivum peregrine impressionis; ut non putrescit, non fit humidus aut frigidus, sicud cetera elementa extranee disponuntur; ut terra humescit et calefit; aqua calefit et siccatur, vel saltim induratur per congelacionem; aer frigescit et putrescit, sicut duo elementa inferiora. Omnia tamen illa sunt per improprias mixtiones corporum extraneorum, dum oportet vel quo ad sensum totum esse elementum.

Difficulties about the great variety of qualities that proceed from the same elementary forms. We answer that each element has its own natural law of activity. This is seen best in fire, the purest of all; it neither rots nor is moist nor cold, which is contrary to its nature; earth may be moist and warm, &c. only because it is not pure. And so of the other elements.

Sed dubitatur an aer sit frigidus, vel exalacio inmixta; aqua, calida, vel igneum inmixtum; terra humida, vel aqueum imbibitum; et sic de mixtis, habentibus elementa talia. Admodum probabile autem est quod terrea mixta inperfecta agregata sunt talia, et non

It is extremely probable that if water is hot, it

10. eciam *pro* est B. 23. quomodo *deest* B. 40. admo B. 41. terra B.

owes it to fiery particles present; &c. How could contrary qualities coexist (v. g. cold and heat in water)? Thus heat in earth or water is a violent state; and we have proofs that such a state implies much activity, because of the tendency to return to the natural state. Yet the same element, in different circumstances, does not act in the same way; fire acting on water produces, not fire, but vapour, and then takes its proper form.

pura elementa. Non enim est possibile quod contraria sint extensa, sed dum unum elementum agit in reliquum, subito generantur et corrumpuntur atthoma $2^{m}$ totas quantitates et formas substanciales; et cum idem quod dat formale dat tamen hoc correspondenter quantum debitum est de loco, nisi inpediatur; hinc apparet sensui erranti terreum vel aquum per tantum esse calidum, cum violentum est activius in agendo quam foret, ipso non violento; sicud patet per multa experimenta, quibus scitur violentum vigorosius reducere se ad dispositionem | naturalem, quam sufficit B 144[b] non violentatum agere. Agit tamen in virtute superioris regulantis. Et ideo non mirum si dispariter agat cum disparibus circumstanciis. Apparent ergo nobis qualitates esse per totum, cum tamen non sit ita. Unde ignis, agendo in terreum vel aqueum, non inmediate producit ignem, sed resolvit materiam in vapores vel fumos, et sic subtiliat ad aerem; et demum inducit formam ignis. Non quidem est possibile quod forma substancialis sit reliqua remissior $2^{m}$ partes eius intensivas, cum substancia non suscipit maius aut minus; sed partibiliter inducitur quo ad subiectum. Et subito consecuntur qualitates nove in toto formas novas, cum impossibile sit qualitatem ultimam singularem in utroque elementorum manere symbolorum parcialem; ergo commixtione contrariorum dicuntur elementa remissa, dum talia sunt mixta inperfecta, et non elementa. Et sic per rarefaccionem disponitur materia ut sit sub forma aeris vel ignis; et econtra per condensacionem, ut sit sub forma aque vel terre, et hoc frigus, constipans aerem, generat ex eo aquam; sicud econtra calidum rarefaciens aut resolvens in fumos aut vapores, generat aerem aut ignem. Non tamen scio quod ex aliquo tali elemento inmediate generatur terra, sed ex commixto, quod est terreum admodum.

Thus the elements are said to have less of their essential qualities, when in reality they are not elements but combinations with contrary qualities.

The arguments which assert that in this case one

Et argumenta que arguunt in ista materia quod unum elementum consumeret reliquum, quod calidum inducit per totum frigidum, caliditate remissa (et sic de aliis)

4. ide$^{m}$ B. 5. form̄i *very illegible* B; ib. tη B. 7. ta$^{m}$ B. 14. Oportet B. 23. non$^{e}$ (!) B. 26. ſymblor$^{e}$ ꝑtal$^{em}$ B. 34. im$^{te}$ B. 36 admd B.

omnia supponunt elementa agere sine regula limitante, et continue unum durancius tollere de suo subtriplo, et reliquum se habere, ut oportet, [ad] sensum; racio tamen contradicit talibus ymaginibus. Probabile tamen est quod elementa possunt taliter misceri in mixto, quod nunquam unum aget in reliquum; ymmo quod anima sufficiat elevare corpus suum quantumlibet celeriter; et omnia corpora mundi fiunt incorporalia, propter novum modum componendi illa ex atthomis, et cessacionem motus celi. Quis, queso, philosophus scit virtutes corporum quas possunt habere ex diversis mixtionibus et diversis formis, que adhuc latent in visceribus nature incognite?

element would destroy another, ignore the fact that all elements follow certain laws. Elements may perhaps be so mixed that none of them should act on another, so that the soul could act at will on its unresisting body, and all bodies become *quasi* incorporeal.

Consimiliter ymaginandum est quod elementa, unita debito modo, constituunt fumos ac vapores; et illi grossati, tanquam mixta imperfecta, constituunt mixta grossiora, ut sulfur et argentum vivum, que principiant lapides et metalla secundum dispares gradus humidi, exalacionem terrestrem, et vaporem aqueum. Quod si aer et ignis habundancius participant in mixtis inperfectis, principiant vegetabilia et sensibilia, secundum quotlibet gradus. Unde, inter sensibilia animata et B 145[a] inanimata, sunt quedam de quibus | dubitatur utrum nutriuntur vel non; ut fungus terre inter vegetabilia. Et sensibilia sunt quedam de quibus dubitatur, utrum habent motum dilacionis vel constriccionis a sensu; ut spongia marina. Et sic mediant inter racionalia et irracionalia illis minus perfecta. In omnibus ergo procedit natura ordinate, tam quo ad modum miscendi ex elementis et mixtis, ut resultet forma superaddita cum suis qualitatibus 2[is], quam quo ad modum durandi et recipiendi influenciam a celo; et breviter quomodocumque naturaliter se habendi.

We may suppose that the elements are united and form vapours; which, condensed produce sulphur and quicksilver, principles of stones and metals. If air and fire predominate, plants and animated beings are produced, in many degrees of perfection; so that we may sometimes doubt (as in the case of the *fungus terrae* and the sponge) whether they live or feel; and there may be beings between man and brute.

Et conformiter ymaginandum est de generibus formarum substancialium: ut infima est forma elementaris, et proxima forma inanimati mixti, post quam forma vegetabilis, 4° forma bruti, et 5° anima hominis. Et in quotlibet istorum sunt multi gradus, 2[m] quod plus vel minus recedunt ab extensione. Nam anima hominis creatur a deo, et est multiplicata per totum hominem

Of all beings, the lowest is the element; then come inanimate compounds, plants, brutes, and men.

3. ad *deest* B. 8. sunt B. 16. 9°:ffati B. 20. pti[tes] B. 24. untr'ut[r] B.

24. *Fungus terre*. May not this be the truffle?

Man's soul is immaterial: that of the higher animals, indivisible but dependent upon matter.

incorporalis, cum eius propria operacio non dependet a corpore. Forme vero brutorum perfectorum sunt indivisibiles, multiplicate per totum, sed requirunt corpus organicum ad suum *esse*, sicud non habent operacionem independentem ab organo corporali. Verumtamen omnis anima multiplicata est cognitiva communis multiplicati ut transcendentis et communium accidencium. Sed non est possibile animam distincte cognoscere substanciam racionalem sub racione substancie, nec animam multiplicatam et separabilem substancialiter a corpore sibi accidente. Et semper forma superior continet inferiorem; ut anima presupponit formas elementorum et formas superadditas in partibus sui subiecti. Impossibile tamen est quod forme diversarum specierum actuent primo eandem materiam, vel sint proximo per eandem materiam adequate. Forme vero anulosorum sunt quodammodo extense, modo quo dictum est superius, sed solum finite in uno animali, cum una forma requirit certam multitudinem materie, recte dispositam ad cuiusquemlibet punctum esse illam. Et sic communicant in actuando, sicut anime hominum habencium duo corda et ceteras partes geminatas supra diafragma, et sub diafragmate solum membra qualia convenirent uni homini.

Each superior form includes those inferior to it. As for the forms of the *Annulosa*, they are, as above mentioned, extended in a certain sense, but not infinitesimally so; the parts cut must have a certain size. They act together as the souls of men of whom the body is double above the waist.

I leave a deeper examination of this to the learned, but beg those who read not to condemn me, because I do not agree with modern theories, but strive to reconcile the *dicta* of the ancients with reason.

Sed de omnibus istis relinquens subtilibus logicis et naturalibus profundum scrutinium, rogo perlegentes illud capitulum non condempnare vel deridere hec dicta tanquam [in]probabiliter opiniata. Scio enim quod multis autoribus discreparant, et argumenta calculancium interimunt multas opiniones et multas ymaginaciones modernorum. In omni namque veritatis examine precellit racio, cum auctores trahendi sunt ad concordanciam racionis iuvamine, non e contra. Nam non dubium quin racio docuit Aristotelem, Platonem, Parmenidem et Democritum, vel quemcunque alium hominem, quidquid invenerit veritatis.

1. ı͡cor$^{t}$ B. 6. 9u͡us B. 7. tn̄$^{t}$ꝯ B; *ib.* 9uu͡$^{u}$ B. 15. p'o B. 20. e͡e c͡e (?) B. 28. in *deest* B. 30. ıt'ıuu͡t B. 33. libac͡e *pro* iuvamine B.

## CAPITULUM DECIMUM.

Sequitur iam ultimo de proposicionibus temporalibus tractandum. Cuiusmodi sunt yppothetice adverbiis temporis copulate, cum correspondenti actu anime | ; B 145b ut sunt tales: *Sors est quando Plato est, priusquam Plato est; postquam ipse est, fuit* etc. Istarum autem propositionum veritates, quantitates et qualitates, cognoscende sunt sicud proprietates localium. Idem enim est dicere *Sor est quando Plato est* et dicere quod *Sors est in tempore* vel *in instanti in quo Plato est.*

Of temporal propositions. They are such as are joined by an adverb of time representing a similar act of the mind: *A is when B is.* They are similar to local propositions.

Unde sophiste concedunt quo *omne quod fuit, est;* et sic de *fore*; quia in magno tempore eterno. Et sic sciunt dicere quandocunque talia fuerunt, sed nulla pro precisa mensura, sicut tamen limitatur in communi modo loquendi. Nec sequitur: *Ego scio ubi vel quando adequate hoc est: ergo sum ibi vel tunc;* sicud non sequitur: *Ego video vel non video locum in quo Sor est: ergo, sum ibi. Scio quod chymera non est: ergo, scio chymeram que non est.* In omnibus enim talibus tenetur terminus subiectus 2° verbo infinite, ita quod actus prioris verbi denotetur cadere super conclusionem, ut sit ille sensus exemplorum: *Scio de aliquo loco vel quando quod hoc est ibi, vel tunc Sors est; video de aliquo loco quod in illo est Sors; scio de aliqua chymera quod illa non est.* Et sic de similibus. Non enim oportet omne scitum vel cognitum esse ubicunque quodlibet sciens ipsum vel cognoscens, sicud nec oportet quodlibet signatum esse ubicunque suum signum est, sed sufficit quod sit ubilibet. Nam, iuxta sic opinantes, quidlibet esset ubique commultiplicatum cum Deo, qui ubique scit de quolibet quod

According to sophists, All that was and that will be, *is*; i. e. in eternity; so they know when anything is, but not exactly, according to the usual sense of *when*. To know when a thing takes place is not to *be* at that time. In such cases the meaning of the verbs *know*, &c. bears on the whole of the dependent proposition. Nor is it true that whatever is known is wherever the knower is, for then everything would be everywhere with God,

1. Cap. *deest; blank space for initial* S. 9. q3 *pro* quando B.
18. ego B. 20. vocatur B. 22. exore B.

ipsum est, et infinitas alias veritates; et per consequens nullus locus esset, cum confuse quelibet pars loci esset ubicunque alia esset, sed omne subiectum vel accidens esset inmobile, quia esset ubique; cum tamen ex alio latere sequitur quod omne accidens acquisitum alicui sit acquisitum cuilibet subiecto, et sic quodlibet agens sufficit quantumlibet distanter agere, movendo omnem substanciam, mota substancia una, eo quod omnem motum vel materiam motus quam haberet aliqua substancia, haberet et quelibet. Ideo sic opinantes haberent pessimum mundum. Non ergo est color in hoc dicto.

all distinction of place would disappear, subject and accident would be motionless everywhere.

This opinion is therefore inadmissible.

Sed argumentatur tripliciter quod omnis veritas sit ubique, primo per hoc quod negaciones et affirmaciones de *posse* preterito et futuro, sunt ubique per hoc quod sunt in Deo qui est ubique. Ergo multo magis affirmaciones positive que sunt in Deo principalius, sunt ubique, sicud accidencia eukaristie conceduntur a theologis concomitanter multiplicari cum Cristo. Et multo magis humanitas Cristi esset ubique, et per idem omnis substancia, cum vere in illo sit, commultiplicatur cum illo ubique. Et sic conversaretur in celo, ymmo a nullo distaret.

Three arguments in its favour: 1. All truth, being in God, who is everywhere, must also be everywhere; for even negations and assertions of what does not now exist, exist in God. Thus Christ's humanity and all substance would really be everywhere.

Similiter, *te esse* non est extensum, sicud nec *te moveri;* et est alicubi, ex hoc quod est. Ergo est multiplicatum vel punctale; et cum non sit racio quare alicubi multiplicatur, quin per idem ubique; ergo ubique. Et per idem omnis veritas est ubique. Assumptum patet ex hoc quod *te esse* per tempus abscisionis brachii | tui erit adequate ubi est residuum corporis B 146a tui, et non movebitur ad illum locum: ergo nunc est ibi; conformiter mota parte tui, et residuo quiescente ad omnem punctum tui, foret tam motus quam quies contraria, quia ibi foret ita: *et hoc movetur et quiescit.*

2. *That a man is*, or *moves*, has no extension in space, and yet it must be somewhere, therefore it is everywhere.

3. Wherever it is true that a man is, there is a man; but the first is true everywhere; therefore the second too.

Similiter ubicunque est ita quod homo est, ibi homo est; sed ubique est ita quod homo est: ergo, ubique homo est. Minor, ex hoc quod si hic non est ita quod homo est, hic falsum est esse ita quod homo est, et per consequens falsum est esse ita quod homo est, et sic non est verum quod homo est. Si ergo hic non est ita quod homo est, hic falsum est esse ita. Si

For God knows all

11. modum B. 16. n̄c *pro* sunt B. 20. sit (!) B. 28. ptꝯ abſciſſio B. 36. h' B. 37. h' B. 39. h' B. 40. h' B.

ergo Deus ubique cognoscit omnem veritatem, tunc ubique cognoscitur et est cognita omnis veritas, et cum *esse cognitum* sit res cognita, sequitur quod ubique sit omnis veritas res cognita. Si ergo negative veritates sunt in omni loco, cum quelibet affirmacio habeat suam racionem essendi in quocunque tali loco, sequitur quamlibet affirmacionem esse ubique, sicud ubique causat relaciones et quotlibet alias veritates; et per consequens est ibi secundum efficaciam et conservacionem.

truth everywhere, and so all truth is everywhere.

Ad istud dicitur quod tripliciter dicitur *esse alicubi:* primo, potencialiter, sicud rex dicitur ubique esse in regno, ubi est eius potencia, vel habitus agendi et disponendi. Secundo presencialiter; sicud rex ubique dicitur esse in aula sua presens, dum habet actualem noticiam ex sua presencia que ibi sint, et ad omnem punctum illius cognoscitur esse presens. 3° modo essencialiter quo ad locum in quo est adequate. Et michi videtur quod duo modi primi essendi alicubi sunt figurativi et negandi a loyco, si desit ibi modus essendi 3° modo, quia tunc quidlibet esset ubique. Unde Deus potencialiter et presencialiter est ubique, quia essencialiter est ubique: quod cognoscitur ex hoc quod conservancia et causancia sua sint ubique, et difformes in diversis, sicud difformiter causat diversa: quod tantum sonat sicut hoc: conservancia vel causancia Dei est difformis: quod nullo modo potest esse, nisi causancia Dei esset alicubi et per idem ubique. Cum ergo sequitur *hic causat Deus: ergo, hic est causans Deus;* et per consequens vel existens hic per essenciam, vel eius instrumentum medium causandi; patet, cum Deus inmediate causat ad omnem punctum mundi, est ad omnem punctum mundi. Sol autem causat distanter ab illo per lumen vel aliam influenciam instrumentalem; ideo dicitur esse potencialiter ubi causat, et non essencialiter. Sed est ordo secundum quem prius causat lumen sibi propius quam lumen sibi distancius; sed est longe aliter de causacione Dei.

To answer these, note that *to be somewhere* means either to be there by power (as a king throughout his kingdom) or by presence (as a king in his hall), or by essence, filling a certain place entirely. The first two are metaphysical, not real, and require the third; God is everywhere in all three senses, because his action in everywhere, and not the same everywhere.

God is everywhere the immediate cause of all;

the sun, causing at a distance, acts potentially only.

Ad primum argumentum audivi 4 responsiones, quarum prima dicit quod tales veritates nullibi sunt, sed in Deo causaliter. 2ª dicit quod sunt in Deo et in

To the 1st there are four replies. 1. That such truths are in

12. potr B. 13. hȝ = habet B. 17—18. ‡nr B. 21. quod *pro* quia B. 27. n̂ B.

God only as in their cause.
2. That they are in God and the world, but in no part of it.
3. That these past and future truths are only where they were or will be true.
4. That they are everywhere;

mundo, sed in nulla parte mundi. 3ª dicit quod tales pretericiones et futuriciones solum sunt ibi ubi fuerunt vel erunt illa quorum sunt pretericiones vel futuriciones. 4ª via dicit quod tales veritates sunt ubique, quia ubique inmediate causant quotlibet alias veritates; et per consequens, cum non habent instrumenta per que causant, sed inmediate per se ipsas, sequitur quod sunt ubi causant. | Si enim aliquis esset locus in quo B 146ᵇ A non causaret, tunc totus ille locus distaret ab A, et per consequens ad omnem punctum illius loci causatur distancia inter ipsum et A; et cum utrumque extremum cuiuslibet relacionis causat 2ᵃᵐ relacionem, sequitur quod per illum locum causat A quotlibet relaciones; et sic est potencialiter A per illum locum; et cum non habet *esse* absolutum, vel instrumentum potenciale, aut alium modum essendi secundum quem foret alicubi, sequitur quod sit ubique: et hoc videtur michi probabile.

which I think probable.

For if we do not distinguish between the meanings of *being anywhere*, and take it to signify any sort of causation, then everything *is* everywhere. But we must speak with the many, and think with the few; so we shall admit that only *filling up* a certain space is *being* in that space.

Et sic conceditur affirmaciones positivas prius esse ubique, sed non omnes, cum affirmacio habens effectum replendi locum, vel informandi, solum est ubi informat. Si enim equivoce accipiatur *esse* in loco, secundum quamcunque causacionem (dimittendo tamen famosiorem modum essendi 2ᵐ replecionem loci vel informacionem) non video quin ad illum sensum posset concedi quodlibet esse ubique; et sic esset corpus in loco a quo distaret et versus quem movetur. Sed quia loquendum est ut plures, et sapiendum ut pauci, conceditur quod habens alium modum essendi quam per causacionem in aliquo loco, solum est ubi illo alio modo est; ut replecione loci, actuacione in loco, vel alio tali affinio.

So Christ's humanity is not everywhere, though *that which is* His humanity (the Word) is so.

Unde negatur quod humanitas Cristi sit ubique, quamvis verbum, quod est illa humanitas, sit ubique; negatur eciam quod quantitas vel qualitas corporea correspondens Cristi sit in Eukaristia. Nec sequitur ex hoc quod illud corpus sit ibi non quantum nec quale, sed bene sequitur quod est *illud quod* non est quantum ibi. Alii tamen dicunt quod corpus Cristi est quantum, et quale, et quomodocunque accidentatum in Eukaristia quo ad accidencia absoluta independencia a

Nor is the quantity, &c. of Christ's Body in the Eucharist; yet the body is not without size. Some admit that

8. ubique B; *ib.* Si enim aliquid esset | si enim aliquis esset B.
31. affu°; (offv B. 34. correspondentis B. 35. sequitur nec sequitur B.

loco, sicud est in celo ubi extenditur; et sic omnis quantitas est figura, vel numerus parcium, et omnis continuacio parcium vel posicio (que est differencia quantitatis) cum ceteris qualitatibus, est concomitanter in Eukaristia; sed non est sic de accidentibus respectivis. Et ex hoc subtiliantur quotlibet conclusiones.

Christ's Body has in the Eucharist all the accidents that are independent of place.

Probabile vero videtur quod omnes partes correspondentes Cristi sunt in Eukaristia sine posicione, figura, vel quantitate harum continua, sicud humanitas Cristi non concomitatur ubique existenciam Verbi quamvis sit eadem persona; et quo ad permanenciam correspondentis transsubstanciati soleo dicere quod non anichilatur vel corrumpitur ex vi conversionis, sed manet unum corpus subiectans accidencia panis, quod voco corpus mathematicum in abstractum. Sicud enim substancia prius non est ens quam est quid, sic panis prius natura est corpus quam est panis vel cuiuscunque alterius speciei specialissime. Et sic idem *esse*, quod prius est panis, manet corpus sub illo gradu quidditatis generalis; sed non manet pure corpus Cristi nec panis pure, sed panis convertitur in corpus Cristi; quia panis manet corpus Christi sacramentaliter, existens sub illis accidentibus sub quibus formaliter panis fuit. Unde, quia panis non est corpus Cristi primarie B 147[a] existens per illum | situm, sed subordinatur ut sit sacramentale signum corpori inibi principalius existenti; ideo non manet post conversionem panis; sicud quidam dicunt propter talem causam elementa non manere in mixtis in actu, sed tantum in potencia. Quia vero ista materia isti loco est inpertinens, ideo non tracto eam ulterius, sed exspecto determinacionem tractare de speciali quidditate illius sacramenti sensibilis remanentis. Accidens autem est sicud quelibet creatura est substancia, quia per se illis accidentibus que videmus subiectata; quia aliter foret nimia sensus illusio.

But I think that the different parts of Christ's Body are in the Host without position, figure or quantity; and that the bread is not annihilated, but remains a body which is the subject of its accidents, and which I call a mathematical body.

The bread is not Christ's Body, but is the sacramental sign of that which exists principally in it; therefore it cannot be said to remain after transubstantiation. But this being irrelevant matter, I prefer dealing with it separately.

2. figa B. 3. quę B. 7—8. corrᵉ B. 25. per illum | per illum B. 26. ibc? B.

15. *Corpus mathematicum.* See, as to the successive stages of Wyclif's opinions on the subject, *De Benedicta Incarnatione*, by Dr. Poole. *Int.* IX. 31. *Tractare.* Wyclif kept his promise in *De Eucharistia*, but at a time when his ideas were much more developed than here.

We thus admit that things are said to be in different times and places most equivocally; as we see for spirit, matter, and compounds of both.

Redeundo ergo, concedendum est res esse valde equivoce in locis et temporibus, ut patet tam de corporalibus quam de spiritualibus. Res vero que simul sunt corporalia et spiritualia dicuntur locari equivoce, secundum disparem racionem verborum; ut heroyci sensibili modo dicuntur esse in celo, cum non solum causant in celo relaciones, sed supereminenter afficiuntur et laborant in terris circa celestia. Unde, secundum Lincolniensem, anima est verius cum illo cui afficitur quam ubi informat; et illo modo dicunt philosophi virtutem visivam (et alias) subito egredi et esse cum sentitis: quod sane intellectum non habet calumpniam. Et sic aliqui vocantes species sensibiles in medio dicunt quod ipsum multiplicat se intensius per totum medium; quia aliter non esset res principaliter naturalis, ubicunque videtur. Et sentencia illorum est unica cum ponentibus species; quia nemo dubitat quin medium habet disposicionem ad causandum visionem; et *medium sic disponi* est species illa quam homo sic confuse videt Sed in speculo videt distincte disposicionem speculi quam vocat ymago. Et sic videt speculum confuse quo ad eius colorem vel figuram, sed distincte quo ad situm. Sed illud cuius est ymago videt distincte quo ad ista et erranter quo ad situm. Tali ergo sensibili modo est corpus Cristi in Eukaristia, et non extensive. Et ideo non oportet ipsum moveri, sed multiplicari, ut sit ibi.

The soul is more where its desire is than where its body is; the power of vision is with its object, and may be said to go forth towards it. It disposes the intervening space to become visible, and this is the image that we see confusedly. When we look in a glass, we see the mirror's shape, size, &c. confusedly and its place distinctly; but conversely for what we see in it; and Christ's Body in the Host is thus.

Nec sequitur aliquod reliquum equiparari deo in essendo ubique, quia ipse secundum nichil sui deest ab aliquo puncto mundi; sed omne creatum ibi existens causat inmediate et essencialiter ultimate; et taliter claudit contradiccionem aliquid aliud esse ubique. Ideo, de quanto sic causat omne causatum in aliquo loco, dicitur replere orbem terrarum, dum alia que sunt secundum solum fantasticam relacionis causacionem alicubi non dicuntur nec fantastice esse ibi; ideo nec active replent omnem locum ut deus, nec causant illud quod subiective replet locum. Ideo dicuntur ab

Nor does it follow that anything is everywhere as God is, for He is essencially in every point of the universe; other things are there only in imagination,

5. heroijci B. 14. intensio$^{r}$ B. 21. ygo B.

5. *Heroyci*, i. e. the Saints. The first condition of canonization is 'heroic virtue'.

aliquibus nusquam esse. Mundus autem cum sua quantitate, licet sit ubique, hoc est ad omnem situm
B 147b cum multis eius sitibus, desunt quotlibet | eius partes temporales. Et licet secundum se totum sit ubique, tamen pro quolibet instanti eius desunt quotlibet eius partes. Sed secus est de deo.

and the world itself, though everywhere, has not all its temporal and local parts everywhere in all time.

Ad 2m dico quod omne corporeum est extensum, sicud et omne *moveri* corporeum. Nec sequitur; *A adequate est sic in illo loco, et iam non est adequate in illo loco; ergo, movetur vel movebitur ad illum;* quia antecedens potest verificari per ablacionem parcium A, cum hoc quod residuum illius A fuerit continue in isto loco. Unde non oportet ex antecedente tali quod A aquirat aliquem locum; sed solum sit ibi secundum se totum, ubi continue fuit eius pars per reliquam partis ablacionem; ymmo stat animam multiplicari per alimentum adveniens noviter assimilatum, et demultiplicari per partem corporis abscisionem, et sic aquirere et deperdere locum sine sui motu locali per se vel per accidens. Habet tamen unum equivalens, quod dicitur multiplicacio vel demultiplicacio. Conceditur ergo quod *te esse* est ibi ubi iam est pars tua, quia ad illum locum, sed non secundum se totum in illo loco, sed erit per partis ablacionem, cum idem sit quodcunque ens et ipsum esse.

To the 2nd we reply that what *is* bodily is extended and is the movement of a body. To be partly absent from a place once occupied does not necessarily imply change of place.

The soul can occupy fresh space by the assimilation of food, without changing its place. *You are* where your part is, but not entirely so.

Nota tamen quod non repugnat, sed est necessarium pocius, omnem hominis partem esse divisibilem, et cum hoc esse animam eius indivisibilem, cum quelibet talis persona sit divisim corpus, et anima, et connexio ambarum. Quod patet ex hoc quod hominem esse sanum est qualitas multiplicata, et hominem esse iustum. Et sic de quotlibet virtutibus: iam oportet subiectum illorum accidencium (quod est hominem esse) correspondenter multiplicari, ut est satis notum. Nec potest dici quod aliquod tale accidens habet partes extensivas, cum manet eadem virtus, abscissis partibus que insunt ipsis adunatis.

Every part of a man is divisible; his soul being indivisible; for in every part you find body, soul, and union of both. Health, justice and all virtues are qualities that exist throughout the whole man.

Sed ulterius de *moveri* et aliis denominacionibus accidentalibus 2m partem, reliqua parte opposite informata, est difficultas perplexior; ut, posito quod brachium meum per totum moveretur localiter, toto

There is another more serious difficulty about movement. When my arm moves, does the truth

4. 1s B; *ib.* z' B. 9. ze *pro* est sic B. 37. adunatꝙ B.

*I move* exist in all my body, or only in my arm? Wherever I am, I move. But *I move* applies to more space than *My arm moves*, since it can be true though the arm is at rest. Thus a whole of which only a part is moved, and he part itself, are moved dlfferently.

residuo similiter quiescente, tunc est difficultas, si per totum corpus meum est ita quod ego moveor, vel solum ubi brachium meum movetur. Et videtur quod ubicunque ego sum ego moveor; tum quia ibi motus sum alicubi, cum eciam quia *me movere* (quod differt a motu brachii mei) est extensius quo ad situm quam est *illud brachium moveri;* cum stat, brachio illo quiescente, quamcunque partem mei residuam moveri, faciendo eundem motum continuum quo ego moveor formaliter. Supponendo ergo quod motus individuatur a subiectis que primo denominat formaliter, patet quod alio motu movetur formaliter motum secundum partem et alio motu pars. Et sic variantur motus ad variacionem parcium sic motarum. | B 148a

Three sources of individuation of movement. 1. The subject alone, without considering the parts or the velocity; such movements exist in the whole of their subjects; 2. The subject together with all its quantitative parts; 3. The former sources, together with velocity and time. In this sense movement is extended. A mobile that has motion of the third, has that of the first sort: but not conversely. Every accident exists at every point in the universe.

Sed ulterius notandum quod motus potest capere individuacionem suam tripliciter. Primo modo unice a subiecto sine specificacione motus partis vel materie talis motus. Et omnes huiusmodi motus more universalium multiplicantur per subiectum, cum sufficit ad eius existenciam mobile moveri secundum quamlibet sui partem. 2° modo contingit motum individuari a suo subiecto quod primo denominat et omnibus eius partibus quantitativis, sic quod, quecunque pars defuerit a suo motu, non foret idem motus in numero. Sed 3° modo strictissime individuatur motus a suo primo subiecto et singulis eius partibus ac materia motus, cum tempore mensurante; et isto modo motus extenditur; ut patet 6° Physicorum: sed non motus mobilis $2^{m}$ partem.

Aristotle perhaps meant

Ex quo patet quod si mobile movetur formaliter motu extenso, movetur motu multiplicato, et non econtra. Nam omnis motus extensus partis facit unum motum cuiuslibet sui tocius multum per suum totum: ut patet noscenti gradus rerum communium. 2° sequitur quod ad omnem punctum mundi sunt omnia genera accidencium. Cum enim omnis substancia causata sit mundus vel pars mundi, omne autem accidens subiectatur in creata substancia, sequitur quod ad omnem punctum mundi sit species accidentis; quia quod ille mundus est sic accidentatus $2^{m}$ totum vel $2^{m}$ partem est ubique. Et sic forte intelligit Aristoteles quod universalia sunt

10. Suppono B. 13. ꝑs B. 16. vn̄ B.

ubique. 3° sequitur quod de omni specie extensorum accidencium, mole indivisibilia et extensa accidencia simul sunt eiusdem speciei. Nam sicud species et suum individuum sunt eiusdem speciei; sicud species est sua quiditas; species autem multiplicatur, et individuum non sic; individuum accidentis mole magnum causat per totum mundum accidens eiusdem speciei quo mundus est secundum partem accidentatus. Et patet quomodo refert accidens causare, quia efficienter denominare subiectum et ipsum formaliter denominare idem subiectum. Nam omne accidens partis mundi efficienter denominat totum mundum, sicud individuum causat suam speciem, et per consequens suum genus tanquam pars subiective. Et sicud hic causat, sic hic est, secundum modum loquendi essendi equivocum ab *esse* dimensionali in loco.

this, saying that the universals are everywhere. All extended accidents are of the same species.

Et sic forte intellexit Anaxagoras quodlibet esse in reliquo in quolibet; et sic non refert dicere *hic est quod hic vivit* et *hic hoc vivit; hic est ita quod hoc est futurum*, et, *hic hoc esl futurum*, cum quodlibet sit ubique. Sed cum in equivocis non sit contradiccio, et modus essendi in loco sit causa equivoce, patet quod huic non obviat via que dicit *hoc vivere hic;* hoc est, *secundum partem vivere ad hunc locum.* Et tamen, *est* B 148b *mortuum hic*, quia *secundum partem existentem in hoc* | *loco.* Et *hic est quod hoc est futurum* et *hoc non est futurum*, hic subintelligendo *secundum molis extensionem.*

This may be the meaning of Anaxagoras, saying that everything is in everything else; it being so in different senses, there is no contradiction.

Et iuxta istum sensum dicitur ad 3m quod minor est falsa, nec valet consequencia deducta per eius probacionem. Sed bene sequitur: *hic non est ita quod homo est: ergo, falsum est quod homo est hic*, ymmo *ubique falsum est quod homo est hic*, quia *non est quod homo est hic.* Unde iste terminus "falsum", est terminus realiter negativus; ut si *falsum est quod homo est*, tunc *hic est ita quod nemo est*, et econtra; et si *est hic falsum quod homo est;* tunc *hic est ita quod nemo est;* et econtra.

3. The minor is false; so there is no consequence. But we may say: *Here it is not true that a man exists; so it is false that a man is here.*

Ulterius conceditur quod deus ubique cognoscit omnem veritatem, sicud et ubique omnis veritas est cognita. Ymmo ubique omne ens est, cum omne ens sit deus, et per consequens omnis veritas, et sic de

God knows all truth, everywhere.

9. causaliter B. 22. equivocus (!) B. 40. incognita B.

Besides, universal being and truth is God; yet not when limited to created truth and being.

aliis analogis significantibus meram essenciam sine qualitate substanciali vel accidentali. Nec sequitur ex isto quod sic omnis substancia vel qualitas sit deus, vel quod lapis vel quodlibet aliud sit deus. Et noticia fallacie figure diccionis solvit obiecta: ut patet in materia de ydeis. Et sic deus cognoscit solum seipsum, et tamen cognoscit omnia; quia non cognoscit ens quod non est ipse. Verumtamen cognoscit aliud a se ipso, sed secundum *esse* suum intelligibile vel secundum essenciam in intellectu secundum quod non est aliud a deo, ut patet 12 metaphysice. Nec sequitur: quelibet creatura, secundum *esse* suum intelligibile, vel secundum suum *esse* intencionale, aut secundum *esse* quod habet ad intra, est deus: ergo quelibet creatura est deus. Loquendo autem de creaturis secundum suas existencias, conceditur quod deus est ubique, cognoscit singulas creaturas, licet ipse creature non ubique cognoscantur, sive sint cognite, cum deus cognoscit res creatas ubi ipse non sunt, ut nunc loquimur de *esse* nunc. Et ita non sequitur: *Hic hoc est cognitum; igitur hic hoc est res cognita.*

Thus God, knowing himself alone, knows all things.

It is a sophism to deduce from this that every creature is God.

Unde pro zophismatibus oportet loycum diligenter notare verbum vel participium quod adverbium loci vel temporis determinat; quia hoc notabiliter variat intellectum. Ut: *nunc* possibile est medium instans crastine diei esse, et tamen non est possibile ipsum esse *nunc*, cum nullum instans vel tempus potest esse, nisi quando est. Sed ulterius fiunt in talibus zophisticaciones per capciones que videntur michi modo inutiles; ut in talibus: *tu scies aliquid esse quando non scies illud esse, ymmo, quando non est possibile deum scire illud esse, quamvis quilibet sciolus poterit tunc scire illud esse.* Illa probatur, capiendo istam temporalem: *aliquid est quando tu non scies illud esse;* que videtur verificari pro hoc instanti quod tu scis esse in seipso, et tamen nichil sciet illud esse, cum non erit; et cum, sciendo ens anologum, sciet illud esse tantum nomen; et cum sciendi ens analogum, | sciuntur omnia. Patet pars B 149a ultima conclusionis. Benedictus autem sit deus eternaliter intuens omne tempus preteritum vel futurum

We must note in these allacies which verb determines the adverb.

It is now possible for a future instant to exist, but it is not possible for that instant to exist now.

There are also other foolish and useless fallacies of like sort.

As, that we shall know something to be when we do not know it to be, and when it is unknown to God Himself.

But blessed be God, who has delivered us from these fallacies!

2. 9te B. 9. omne B. 10. oēz *pro* essenciam B; *ib.* nteu B. 11. addeo (!) B. 19. utnc B. 20. de ce ue B. 22. p30b, B. 37. tam non B.

sibi presens, qui nos liberavit a talibus. Deus enim semper scit quodlibet esse, fuisse et fore; quia verum est quod quodlibet est, fuit, erit pro tempore suo. Et per idem tu nunc scis quod hoc instans fuit et erit, licet non ante hoc, nec post hoc; et patet quod in capcione falsum assumitur pro hoc instanti et quocunque instanti in quo tu nunc existis. Sed pro quocunque instanti precedente *esse* tuum, est verum quod tu scis illud esse, quando non scis illud esse. Et ita conceditur quod tu scis aliquid esse quando tu non scis illud esse, ita quod *ly* "quando" determinat primum *esse* et non verbum *sciendum*.

It is clear that there is a confusion between the time of our present and that of our possible being.

Sed 2ª pars conclusionis est impossibilis; cum semper fuit, erit, et est, nedum possibile sed verum, deum scire omnia fore, esse, et fuisse. Deus enim nunc scit quod dies iudicii fuit et quod mundus generabitur, quia omne verum deus semper scit vel cognoscit; utrumque istorum est verum, igitur utrumque istorum deus nunc scit. Sed non sequitur: *deus nunc mundum scit*, vel *cognosc't hoc:* igitur *hoc nunc existit;* sed satis est quod hoc sit pro aliqua mensura. Unde ante mundum et tempus est verum quod ipse fuit. Nec est magis incongruum provecto quod deus est heri et fuit cras, quam quod Cristus sanitates perficit hodie et cras. Illis autem qui nesciunt elevare intellectum suum, videndo quomodo aput deum omnia que fuerunt vel erunt sunt presencia, eciam secundum existenciam suam, iuge forent tales locuciones incongrue. Nec sequitur: *mundus est generandus; igitur mundus non est;* sed bene sequitur quod mundus non est pro mensura precedente eius generacionem, que est eternitas in qua non potest esse formaliter. Semper tamen est, quia in omni tempore et eternaliter est generandus, quia in eternitate; et tamen in nullo tempore vel instanti temporis est generandus. Et sic in eternitate non est, intelligendo formaliter; cum non potest esse inmutabiliter eterna eternus et tamen in eadem eternitate est totaliter, sicut quelibet creatura.

But that there can be anything unknown to God is absolutely impossible. He knows now the Judgment Day as past and the creation as future. God's knowledge of anything does not prove that it exists, but that it has a certain measure of being. God is yesterday and was to-morrow; if all things are present to Him, these expressions have nothing absurd in them. 'The world is to be'; therefore it is not in the duration that precedes its existence; and yet *it is*, always, for 'always' means in all time, not eternity.

Consimiliter dicitur de hoc sophismate: *Necessario aliquid erit, quando ipsum non necessario erit.* Falsum

We answer in like manner the sophism which posits that

4. m͡uc B. 12. fci^d, B. 16. gab'r B. 23. p̲ vecto B. 25. ele^re B. 37. et'a et'uns B. 39. sophisma(!) B.

23. *Provecto.* To one initiated.

'something will be necessarily, when it will not be necessarily.' Only absolute necessity is opposed to contingency of every sort.

quidem est, cum omne quod erit necessario erit pro quacunque mensura temporis pro qua erit, eo quod necessarium ex supposicione convertitur cum contingente. cuiusmodi est omne verum preter necessarium absolute. Et ita creata est necessitas in ista: *hoc erit* (demonstrata quacunque re contingente sicud in existencia sue speciei); et cum hoc habet causatam contingenciam ad utrumlibet in utroque; sed in permanencia, in prioritate, in maiori utilitate excedit unum commune suum singulare. Qui autem aliter in prioritate, in maiori utilitate excedit unumquemque suum hoc non solet. | B 149b

Loquebar in hoc tractatu, fuit ex ignorancia huius sentencie. Nec decet pueros aut provectos sic loqui, nisi sciolos, cum circumstanciis requisitis. Ideo expedit scire utramque scolam; sed puerilis scola imbrigabiliter onerosa. Scola autem, eciam theologorum, est levis, dissensiones sophisticas statim excuciens correspondenter ad condiciones hominum quibus conveniunt iste scole. Nunc autem sum nimis senex ad penaliter incarcerandum me in scola priori. Ideo, propter facilitatem indulgendum senibus sequor 2am intelligendo scripturam, et colloquentes quando equivocando locuntur ut parvuli.

We may, however, grant some of the conclusions urged against us. V. g. Something is necessarily in the future when it cannot possibly be in the future. This is verified in the case of the Instant. But *when* is here taken in two different manners, now determining the verb, now the participle.

Verumtamen notandum quod zophismata concedenda possunt commisceri in illa materia, ut sic, *necessario aliquid erit futurum quando non poterit esse futurum.* Nam quodlibet instans est pro mensura sui ipsius, ne sit in infinitum processus in mensuris huiusmodi, ut patet 4° phisicorum. Quodlibet ergo instans est futurum pro mensura sui ipsius; et pro illa mensura non poterit esse futurum, cum nullum instans anteriorari poterit vel differri. Ista tamen oracio est amphigorica, secundum quod *ly* "quando", geminatum, potest diversimode determinare verbum vel participium. Ut illa: instans iam est futurum in seipso et continue usque ad illud exclusive est futurum in seipso, sed non

3. 9tinte B. 5–6. demonstrata B. 9. vtite B. 12. folt B. 31. antrorai B.

13. There is no gap here, but it is evident that one sentence at least has been left out. The negligence of the copyist seems to increase as he approaches the end, as may be seen by examining the mistakes in the MS.

poterit in seipso esse futurum ad istum sensum, quod *poterit esse quod in isto instanti A est futurum.* Et sic signum temporis potest determinare verbum illud *erit,* vel participum *futurum.* Igitur super illa equivocacione contendunt loyci, in suis apparenciis gloriantes. Sic ergo quodlibet instans temporis necessario erit, quando non poterit fore vel esse futurum. Nec sequitur, *hoc erit, quando non erit ita quod hoc erit, ergo, hoc erit quando hoc non erit.* Sed bene sequitur quod *hoc erit quando non est futurum.* Et adhuc in quolibet tali potest zophista contendere secundum sensum equivocum.

And logicians do battle upon these equivocations, and glory in vain appearances.

Quidam autem inaniter subtiliantes concedunt quod quandocunque aliquid erit futurum, tunc erit; quos (ut videtur michi) oportet concedere *Omne quod erit immediate post hoc 'fore'; ymmo, omne quod erit, nunc erit;* sicud semper erit antequam erit, tolletur prioritas inter instancia vel quecunque futura, et sic parum finitum magnum tempus erit aliquot instancia; et quitlibet, ut diucius est futurum, diucius erit. Et sic patres in fine mundi longe diucius vivent quam vixerant patres in mundi principio. Et sic nichil posset senescere, alterari, vel moveri, cum inmediate post hoc habebunt omnem denominacionem quam unquam habebunt. Et sic de preterito. Quotlibet talia sunt obicienda vel dissona; concedendo quod *si tunc est ita quod B erit, tunc B est futurum; et tunc est 'fore' ipsius B;* et econtra. *Si* autem *tunc B erit, tunc erit ita quod B est,* et *tunc est esse B;* et econtra erit. Et ita de preterito.

Some, with foolish subtlety, grant that whenever anything will be in the future, it will be; it would then be before it would be, all order of priority between different instants would vanish, nothing could become old, or change, or move.

We, therefore, say that if at a certain moment it is true that B will exist, then B is future, and its futurity exists then; but if at that moment it will exist, then its existence is.

Et sic non oportet concedere quod omne incipiens esse vel desinens esse, semper incipit et desinit esse; B 150a et quod | album per totum sit nigrum, et sic de aliis denominacionibus contrariis, pro diversis loco et tempore eidem inexistentibus, cum non pro eodem instanti est hoc album et nigrum per totum; quia tunc foret pro illo instanti *ita quod* hoc est simul sic album et nigrum per totum, et pro illo instanti inesset huic albedo et nigredo per totum. Nec obest, album esse nigrum, et tamen illud pro eodem instanti differre a nigro, et esse aliud quam nigrum, quia ad talem differenciam vel alietatem sufficit quod pro aliquo tempore vel pro

Nor can we admit that what is becoming is always becoming, nor that white is black, &c. White, however, may be black and at the same time not

5. appuciis B. 15. pt' B. 17. pu B. 18. Φ B. 20. vinet B.

aliquo instanti sit album, pro quo ipsum non sit nigrum. Et sic formaliter senex differt a se puero, Sors est alter in teatro quam in foro, melancolici sunt demenciores seipsis in autumpno; et sic de quotlibet proposicionibus philosophorum, quas quondam putavi fore puram demenciam. Verumtamen non sequitur ex istis quod idem differt a se, licet differat a se tali.

black, provided that the thing which is white should not be black then. Thus the old man differs from himself as a boy; a man is different in the theatre and in the marketplace, melancholy persons in autumn are less sane than themselves. All this merely means difference from a certain *suchness* of self.

Unde, iuxta dicta de multitudine accidencium et de gradibus rerum communium, est dare unum subiectum commune quod primo subiectat tale accidens multiplicatum; verbi gracia, est dare unum ignem communem ad istum ignem accidentalem, et quamlibet suarum parcium, qui est subiectum motus multiplicati per totum. Nam, posito quod ignis partibiliter generetur a non gradu, quousque fuerit plene generatus, et abhinc incipiat corrumpi, ubi desit generari, est dare unum ignem ex omnibus istis ignibus aggregatum, subiectantem omnem illam generacionem et istam corrupcionem. Et ignis communis ad singulum istorum componencium est nunc magnus, nunc parvus, nunc sic accidentatus, et nunc modo opposito. Et est dare qualitatem, quantitatem, accidencia successiva, que nunc sunt magna vel intensa, et nunc opposito modo. Et sic quantitas, licet acquirat sibi quantitatem accidentalem, qua sit formaliter magna, acquirit tamen partes quibus quantificatur varie successive. Nec sequitur ex isto quod quantitas illa sit continue eque magna; ut contingit de tempore quod illa quantitas habet differentes scilicet successivas et mole magnas; non sic autem tempus. Et sic habet pro quolibet instanti quodlibet partes simul secundum se totas. Ideo sunt multe manieres successivorum.

We must admit a universal subject to which different accidents belong, and which is at different times differently affected by them; we also admit quality, quantity and accidents that change successively.

Et correspondenter dicitur quod motus nunc est velocior, nunc tardior; eadem qualitas nunc remissior, nunc intensior; eadem etas nunc maior, nunc minor, propter differentes partes. Ymmo, posito quod non habeat tales partes differentes, adhuc suscipiunt successive magis et minus; ut patet de mistica fide, spe, et caritate, que (augmentata materia vel intensa) non componuntur ex suis partibus intensivis, sed est intensione earum continue | nova qualitas indivisibilis quo ad B 150b

Movement is sometimes more, sometimes less rapid; the same quality is more or less intense; and even if they have no parts in themselves (as the virtues of faith, hope and charity) they can change suddenly into a more perfect quality,

3. Melancolya B. 7. the͡ B. 17. ignis *pro* ignibus B. 28. dn̄tes B. 39. e͡itul̃one B.

partes quantitativas et qualitativas, que tamen per tempus possunt manere; sicut non contingit de partibus temporum, cum nulla posset esse diuturnior vel brevior quam est de facto. Nec sequitur quod talis alteracio sit infinitum velox, qua subito inducitur talis gradus; quia illa non est velox vel tarda, cum sit subita. Alteracio autem successiva est velox, quia tanta latitudo qualitatis aquiritur vel deperditur quo ad tempus, tantum vel tantum; et diu fuit antequam cognovi huiusmodi successivum.

and this change is not infinitely rapid, since (being instantaneous) it can neither be called quick nor slow, like successive change. It was long before I understood what succession was.

Non autem sequitur ex isto quod quelibet pars dati corporis sit quelibet; sed commune ad quamlibet eius partem est quelibet. Nec sequitur quod corpus gradatim existens, ille partes sibi succedentes, sit aliqua eorum, sed unum ex illis compositum. Alias autem multiplicavi argumenta ad suadendum quod nichil potest alterari; sed vel saltem quod non est alterum una vice quam alia quacunque. Ut, posito quod Sors, qui iam est albus, et in B instanti erit niger, swadebam quod erit albus in eodem B instanti; et per idem, qualecunque aliquid unquam erit ipsum, continue est tale. Nam tantum album erit Sors, et semper erit omne album aliud a nigro; ergo Sors nunquam erit niger. Sic quod non albinus; tunc enim tantum non album erit Sors, cum tamen nichil erit Sors nisi Sors albus; quia si aliud, tunc illud fiet et incipiet esse Sors; et sic non quitquid erit Sors iam est, quia Sors niger erit Sors, qui adhuc non est Sors, et ipse est vel erit aliquid; igitur aliquid erit Sors quod nunc non est Sors. Argumentatur enim ab inferiori ad suum superius, cum constancia subiecti negative postposita.

Not every part is every other, but that which is common to every part; nor, in a body made up of successive parts, is it one part that is another, but the whole aggregate. *Objections*, 1. if any individual is white at a given moment, he is always white.

Similiter, tunc Sor in B instanti differret ab albo; et per consequens tunc omne album tunc differret ab illo, et sic differret a se. Nam intento Sorte in albedine, sequitur in casu quod longe albior erit Sors in B instanti quam nunc est; et per consequens tunc erit albus.

2. An individual that, after being white, has become black, would be different from whiteness: whiteness would differ

12. ſȝ B. 18. quod sors *twice* B. 19. in ıφti B. 20. in ı͡φti B. 24. aȝiuꝰ B. 34. fore B.

15. *Multiplicavi* and lower down *swadebam*. Here follows a series of arguments to which Wyclif afterwards *replies*; so that we may perhaps consider these words as one of the many negligences of the scribe, on account of which (at least partly) I have been obliged to forego marginal notes in many places.

from him, and consequently from itself, since the individual *was* identical with whiteness.

Assumptum patet ex hoc quod, quam album erit Sor, tam album erit in B instanti, cum omne album quod erit minor erit Sor in B instanti quam nunc est; et per consequens tunc erit albus. Assumptum patet ex hoc quod, quam album erit Sor, tam album erit in B instanti. Sic enim locuntur illi qui concedunt quod infinitum minus albus incipit Plato esse quam Sor est albus. Et tunc habetur quod, quam senex vel cuiusmodicunque erit aliquid in aliquo instanti, erit et in quolibet in quo erit. Sequitur enim in Dabitis: *quidquid vel qualecunque nunc est Sors, illud et tale in B instanti erit Sors; sed album iam est Sor: igitur, Sor in B instanti erit album.*

3. A king cannot have been baptized, or engendered, since he was not a king at that time. A man is much less a king than he is a man.

Similiter iuxta illam zophisticacionem, sequitur quod nemo generavit istum regem, baptizavit vel percussit istum sacerdotem, vidit istum episcopum, et sic de aliis. Et tamen iste rex fuit genitus, et ille sacerdos fuerit actualiter wulneratus, ille episcopus a quotlibet hominibus visus; et sic de similibus. Et tamen fiebat rex; et omnis faccio est generacio; sicud homo est longe minor rex vel papa | quam ipse est homo. Ymmo, si accidens sit B 151ª res absoluta que per se potest existere, impossibile est corollarie quod fiat unum ex subiecto et accidente informato, cum accidens haberet propositam quantitatem, densitatem, et alia eius accidencia, sicud habet propriam entitatem. Et tunc sine dubio nemo sentiret substanciam propter tale accidens, sicud nec sentiret animam vel materiam propter sensacionem continui, aut indumentum propter sensacionem indumenti. Quelibet enim talis sensacio posset manere terminata ad accidens, corrupto subiecto. Cum igitur non accidit sensatum terminare ad quemcunque terminum suum, sequitur quod solum sentitur ens esse sensibile; quod est verum.

If an accident could be separated from its substance, the two could not form a single whole, and we should no longer feel the thing by means of the accident, but the accident that would itself be a thing.

4. Other arguments and conclusions.

Similiter, sequitur quod Sors non est indutus cappa Platonis, et erit indutus illa inmediate post hoc; et tamen Plato nunquam habebit aliam cappam quam nunc habet, sicud nec Sors erit indutus aliquo quo nunc non est indutus, nec umquam movebitur versus cappam, nec econtra; et tamen iam distat a qualibet cappa Platonis per mille milliaria. Et per idem sequitur quod iste carpentarius fuit facturus istam domum, et

1. aʒ⁹ aʒᵐ B. 2. aʒᵐ B. 4. aʒ⁹ azᵐ B. 8. heʳ B. 18. ac't' B. 20. loᵉ͡ mi͡or B; *ib.* 23. c'olle' B; *ib.* quin B. 40. mili'ac'a B.

tamen nec facit nec faciet istam domum, posito quod faciat istam domum antequam erit carpentarius. Et sic esset possibile quod Sor incipiat esse res nigra, et tamen non incipit esse res nigredine colorata. Et in casu incipiet esse res que coloratur, et cum incipiet esse res et tamen non incipiet esse res que fuit, vel erit, nigredine collorata. Et tales zophisticaciones reputantur subtiles illis qui concedunt de qualibus specie, quod illa per accidens est illa species. Ut conceditur in casu theologico possibili quod in fine istius hore fient infiniti homines; et tunc nec fiet aliquid, nec quale, nec res aliquo modo se habens, posito quod Verbum sssumpsit infinitos homines racione et dimittat eos in fine hore. Et ita possibile est illis quod iam est tantum unus homo, et infiniti homines corrumpentur vel annichilentur, et nichil absolutum generabitur; et tamen in fine istius hore erunt infiniti homines, posito quod deus assumat duas multitudines infinitas naturarum humanarum, et unam postmodum annichilet; et reliquam dimittat in fine illius hore. Et in alio casu est possibile quod in hora generabuntur infiniti homines. Et tamen nullus eorum generabitur ab aliquo, quod non est deus nec a deo. Ymmo deus non sciat quando ad istorum hominum; et, posito quod ista hora dividatur in suas partes proporcionales minores usque ultimum instans, et quod in quamlibet istarum parcium deus dimittat naturam unam de illis infinitis assumptis, et post illo modo in 2ª medietate eiusdem partis anichilet eandem, tunc enim nunquam foret aliud istorum hominum, iuxta consequenciam logicam. Et sic est possibile quod duo filii fuerint geniti de A muliere in B instanti, et tamen tunc non genuit nisi unum filium; et sic potest esse in B instanti, nec genuisse duos filios in B instanti, nec aliter se habuisse tunc quam habuit se. Posito namque
B 151ᵇ quod natura assumpta dimitteretur, | tunc fuisset genita a muliere, cum tamen illa non genuit illam, sed aquisivit per unam puram negacionem.

We can vary *ad infinitum* our fallacious conclusions,

Comiscendo eciam alios terminos accidentales cum terminis quos vocamus substanciales, contingit in

5. colorata B. 6. cipiet B. 7. collerata B. 8. que B. 13. rome B. 23. qu adıtorꝑ B. 27. p9io° i 2ª meᵗᵉ B. 29. aliud (sic!) B. 31. mlie' B. 38. 9mſcendo B.

23. The text is certainly corrupt here.

by bringing in other but similiar confusions between substantial and accidental terms. Examples.

infinitum procedere sophisticando: ut infinitum magnum spacium in ista hora futura erit pertransitum a Sorte; quod spacium $2^{m}$ totum formaliter in eadem hora et neutrius spacium corrumpetur, nec alter retrocedit; et tamen, in quacunque proporcione volueris, Plato in eadem hora movebitur velocius Sorte. Ymmo non plus quam semipedale est pertransitum a Sorte, quamvis inmediate post hoc infinitum magnum spacium erit pertransitum ab illo; et sic maius spacium erit pertransitum ab illo quam ille pertransibit, tamen non plus pedali pertransibit. Et sic in infinitum magnum fuit pedale, et per consequens nichil fuit maius quam fuit pedale, quamvis non maius quam pedale fuit illud pedale, cum solum in infinitum magnum fuit in B instanti in quo fuit solum pedale; quamvis non minus centipedali umquam fuit. Ymmo stat quod infinita loca replebuntur per istum hominem, in quorum nullo iam est iste homo; sed quilibet istorum distat ab isto homine, et tamen nec iste homo movebitur ad aliquem istorum, nec econtra; nec est multiplicacio illorum. Ut, posito quod sint infiniti homines admodum corporee dispositi, et quod verbum assumat successive omnes naturas eorum, ypostestante natura humana unita in celo non mota; sequitur similiter de possibili quod deus, faciendo $3^{s}$ eternos homines qui potuerunt fieri, tantum perficit genus humanum sicud potest, nec plures homines quam illos $3^{s}$ potuit produxisse: ut, posito quod $3^{s}$ persone divine omnem humanitatem possibilem assumant yppostatice, que maneat eternaliter unite. Ultima particula patet $2^{m}$ eos qui ponunt personam per subiectum fieri quotlibet homines, assumendo diversas naturas. Si enim subtiliant quidam, ponendo unum hominem posse esse infinitos; et contrarie homo de possibili in A instanti est infinitum minus carus deo quam erit in B, sine hoc quod unquam demerebitur vel aliquod positum deperdet. Et sic idem homo potest esse pater et mater et tota parentela sui ipsius.

In all these cases we have the *fallacia accidentis*,

Et ut breviter dicatur, cum omnis terminus per se in predicamento connotet negacionem, sic quod suum

2. futar B. 3. for B. 20. ralti° *or* mlti° B. 21. coree B. 22. afmpmat B. 29. assumat B. 32. quidem B. 33. orie B. 35. quod B. 38. dicitur B; *ib.* persone (?) *pro* per se B.

significatum positum manere eadem res non existens sicut qualificatam, patet quod cum omnibus talibus terminis faciendum esset zophisma, et paralogizandum secundum fallaciam accidentis; ut natura humana, que humanitas dicitur, potest esse, ut homo per hoc quod dependencia ab aliena suppositacione. Et proporcionaliter dicendum est eciam de omni termino specifico. Et in tantum extravagantur nostri theologi, quod ponunt deum non solum posse multiplicare corpus per diversa loca, sed eciam idem punctale singulare multiplicare per spacium infinitum, et idem singulare plurificare ad tantum numerum sicud est maximus numerus mundi, et quodlibet mixtim ydemptificari, et sic de multis impossibilibus.

which can be extended even to all specific names. Our theologians go far as to admit that a point can be multiplied throughout infinite space, &c.

In ista materia, respondendum differenter, iuxta opinionem restringentem tempus et non laxantem tempus presens ad omne preteritum vel futurum. Ad primum dixi quod prima consequencia non tenet; ymmo, tantum album, nigrum, non album (et sic de aliis) erit Sortes; et sic aliquid erit Sortes; aliqualiter non erit Sors albus; ideo erit aliud ab albo. Sed nichil aliud ab albo erit Sortes. Et istud argumentum sequens peccat in fallacia accidentis que peritissimos fallit ex premissis.

The answer to these difficulties must differ, according as we do or do not admit of a present tense including past and future. 1. The change from white to black is a change of quality, not of nature; so that an individual, when not white, will be *in some wise* (not *something*) different from white. 2. It is not *whiteness* that would differ from a given individual that is black in the instant B; but all *that is* white; a very different thing.

B 152ª Igitur sequitur | quod aliquale aliquando erit Sortes, quale nunc non est Sortes; quia *esse album* non est esse *aliquid*, sed est esse *aliquale*. Tunc enim, faciendo hominem, fieret ipse aliquid: quod est impossibile.

Ad 2^am^ negavi primam consequenciam; sed bene sequitur quod omne quod erit album in B instanti differet a Sorte. Et pro ulteriori responsione in illo argumento est notandum quod, tam a parte subiecti quam a parte predicati, contingit terminos similiter supponere pro accidente, vel (ut aliis placet) pro aggregato ex subiecto et accidente. Et specialiter, si fuerit terminus abstractus, vel terminus qui non [potest] bene per se supponere verbo. Sicut enim concederet philosophus quod statua et es differunt in *esse*, et cum aliis concretis, sicud *esse statuatum* est aliud quam accidentatum, fiunt equivocaciones 2^m^ supposicionem simplicem aut personalem.

A statue and the brass that is the statue differ entitatively.

1. pom B. 5. uc B. 8. erragent^r^ B. 15. rudedi diffuse B. 16. tpuc B. 20. ad^te'^ = adicere (!) B. 30. responsioni B. 35. potest *deest* B. 36. vo^z^ B. 37. drut ce B. 38. acc^m^ B.

Nota ergo: albior vel albus erit Sortes in B instanti, quamvis album tunc erit Sortes. Nec sequitur ex hoc quod "tam album tunc erit Sor quam album umquam erit Sortes", quia si minus albus, magis albus, aut eque albus tunc erit Sortes, sequitur quod Sortes tunc erit albus. Ex quo, ad syllogismum in 1° prime figure, dixi quod premisse concludunt quod Sor tunc erit *illud quod est vel erit* album.

3. To make a king is but to produce an accidental quality, and a king (*minus* this quality) may be engendered or baptized. Judges ought to apply this point of logic when questioning witnesses. I do not believe that such accidents can be absolute entities; when I perceive whiteness, I perceive the thing as affected by that quality; substance is perceived only by means of its accidents.

Ad 3$^{m}$ negavi primam conclusionem, cum faccio regis sit generacio accidentis, sicud elecciones creant papam, cesares; et ita est dare baptismum vel mundacionem, quia continue baptizatur immundus. Nec obest quod generacione substanciali vel baptismate aque (et sic de similibus) generabatur vel baptizabatur iste rex vel sacerdos. Unde decet iudices nosse loycam suam, ne examinent testes de accidentibus; ut puta si accusatus percussit illum hominem; vel si iste sacerdos fuit percussus a reliquo. Non ergo credo fore possibile accidens fore tale absolutum; quia sine dubio oporteret, illo dato, ponere quamdam informacionem mediare, a quo formaliter et inmediate subiectum est taliter accidentatum. Et ita, senciendo album, vel quodcunque aliud accidens, senciam rem taliter accidentatam. Utrum autem illa res sit substancia, homo vel quecunque alia species, non est sensus discutere, sed virtutis superioris. Ideo dicit Aristoteles quod substancia non sentitur, nisi per accidens; quia accidens sentitur sub racione qua huiusmodi; et accidit substancie taliter esse accidentatam.

There are different questions concerning the sensitive act, into which I do not enter at present.

Sed dubium an quilibet habens unum actum de sensibili habeat infinitos actus de partibus eiusdem, quarum deperdicionem vel aquisicionem ille non participiet, ablatis vel generatis ipsis substanciis. Vel an est dare unum per se sentitum, ad quod per se terminatur actus et per accidens ad quotlibet alia. Et si eadem species potest vicissim sentire naturaliter et singulariter infinita similia presentata, et per consequens nulla talis certificat evidenter de obiecto. Vel an solum manet species in presencia obiecti, vel an non est ponenda, 3°, si idem actus in numero et eadem species potest manere, nunc intensior et nunc remissior. Ista dubia relinquo alteri loco, gracia brevitatis.

4. *before* albus all B. 32. ar B. 35. potest vicissim *twice* B. 37. ar B. 38. ae B.

Sed notandum secundum viam veritatis quam modo profiteor, quod possibile est, ymmo verum, quod homo genuit datum regem. Sic enim $2^{m}$ locucionem scripture et philosophorum: *Ceci vident, Sortes senex differt a se*
B 152b *puero;* per idem *Yesse* | *genuit David regem*, quia genuit eum qui terre sue est rex. Unde proposiciones huiusmodi sunt equivoce, ex hoc quod potest fieri composicio in sensu composito; ut pro eodem instanti sit inherencia predicati ad subiectum, vel divisim quod suppositum alterum extremum insit supposito reliqui extremi, ipsis pro diversis temporibus sic accidentatis. Unde, sicud deus simul tempore dampnat et beatificat pro diversis locis (ut in inferno et celo) sic idem homo pro eodem modo gignitur et regnat, sed diversis temporibus; quia *omnia tempus habent.* Et ita non sequitur: *Petrus nunc gignit istum regem:* igitur, *ille nunc est regens*, vel *rex;* sed satis est quod nunc sit gignicio, et ille est rex pro quocunque tempore assignando. Et ita de similibus est dicendum.

Unde homo, quandoque gignitur, quiescit; utputa quando illud semen est in alterutro parente vel utroque; et sic concedi potest quod quilibet nostrum fuit in lumbis progenitorum nostrorum. Sic conceditur quod homo est terra; propinqua vero generacio hominis fit successive in utero, propinquissima vero in unione yppostatica anime cum corpore; et sic alia corpora inanimata sunt propinqua sue generacionis $2^{m}$ partem. Et manet consequencia, dum aliqua pars quantitativa corporis duraverit. Ut, posito quod A ignis incipiat parcialiter generari usque ad finem istius hore, in quo erit ignis octupedalis plene generatus; et quod post incipiat corrumpi, tunc manebit continue idem A ignis qui maneret, subducta corrupcione; ymmo qui maneret, corrupcione concomitante generacionem. Sed a tempore mensurante generacionem videtur quod huiusmodi animatum capit suam individuacionem; ita quod, si aliud sit tempus mensurans generacionem forme materialis, est aliud generatum. Difficultas autem logica procedit ulterius, si pro instanti gignit datum regem. Et probabiliter potest dici quod non, sed ad minimum pro isto tempore quod includit faccionem istius hominis, et

I assert that a man can truly beget a king, according to the expressions of Scripture and philosophy. But such propositions can be understood in two senses — in the compound or in the divided sense, either meaning that he who is a king was begotten before or when he is a king. As God damns and beatifies at the same time in divers places, so the same man is begotten and reigns at different times. Thus a man may be *begotten* without any movement consequent on that: i. e. in the future. And man is earth in the same way. The nearer generation takes place after conception, and the nearest when the soul is united to the body. We do not admit that the begetting of a king is an instantaneous act.

3. Si *pro* sic B. 17. gi͡gnic͡o B. 20. queſt B. 39. gi͡gnit B.

faccionem eiusdem ut sit rex. Et sic nemo incipit gignere ipsum regem, nisi sumendo gignicionem pro constitucione dignitatis regalis, quam deus vel populus diu post facit postquam est genitus ut homo.

4. I at first admitted the four conclusions of this argument, but now find them very childish.

Ulterius quo ad 4$^{m}$ concessi 4$^{or}$ conclusiones tamquam possibiles. Nunc autem videtur michi subtilitas nimium puerilis. Nam Sor est pro tempore suo indutus cappam Platonis. Ymmo iam est inmediatus cappe que est Platonis, quia induitur cappam que alias est Platonis. Et ita in casu 2$^{o}$ ille qui alias est carpentarius iam facit istam domum; et ita Sor erit res nigredine colorata. Et correspondenter de conclusione 4$^{a}$.

It does not follow that because something is *now*, and is to have another quality, it has that quality *now;* because *now* qualifies *is*, not *is to have.*

Unde notandum quod idem est dicere, "*Johannes nunc incipit esse album* et *Johannes nunc incipit albari.* Nec sequitur: *Petrus nunc est homo qui tempore suo est rex, album vel aliter quomodocunque accidentatum;* ergo *Petrus modo est rex, album;* quia tunc quidlibet semper foret quomodocunque foret unquam. Quando ergo sic dicitur: *Petrus nunc rex est,* adverbium determinat hoc totum predicatum, *est rex.* Nam verbum cum suo apposito predicatur. Non ergo sequitur: *Petrus est mortuus* et *hoc instans est;* igitur *in hoc instanti est mortuus.* Sicud non sequitur cum adverbio loci; sicut omnis locus preteritus vel futurus est, licet non sit modo: sic omne preteritum vel futurum est in magno tempore secundum se vel aliquam eius | partem, licet non modo B 153$^{a}$ ulterius.

As or the other conclusions taken from theology. I do not see how the marvels alluded to can be done by God. Some say God can do so, because He is almighty; some, because it is pious to believe of God whatever can be sustained without contradiction;

Quantum ad conclusiones deductas cum tribus evidenciis sequentibus, deum contestor et numina quod non capio adhuc evidencias ad cognoscendum illas, vel quomodo poterit probari deum posse talia. Et, ut sepe dixi, quatuor modi arguendi, quibus nostri temptant hoc probare, hoc non movent efficaciter. Quidam enim arguunt quod deus potest talia, quia est omnipotens et potencie infinite; quidem per locum *a simili*, quia fecit magis mirabilia; quidam per locum ab auctore; et quidam, dum deficiunt argumenta, assumunt predicando quod pium est credere de deo quod sit tam omnipotens quam potest sustineri sine repugnancia ipsum esse;

2. finu͡eda B. 8. i͡ me$^{t9}$ B. 9, 10. Platonis quia induitur cappa que alias est cappa Platonis quia, *etc.* B. 20. appto B. 29. n͡uma B. 30. 9u͡o B. 37. quidem B.

sic, induendo habitum responsalis, utuntur suis fictis invencionibus. Ista ergo humanitas, que est natura humana et non divina natura, est assumpta, et illa est deus, et incipit esse, sed non deus: ut patet nutritis in recta logica, ut allibi declaravi diffuse.

thus shifting the burden of proof.

Ulterius dubitatur si omne quod erit simul est cum quolibet quod est, tam quo ad locum quam quo ad tempus. Et videtur quod non, quia tunc omnium terminatorum forent ultima simul; et per consequens nulla foret distancia, eo quod nichil esset solum, cum omnes viri et omnes mulieres simul habitarent, et comederent, et dormirent, et quomodocunque aliter se haberent.

Whether all things are together, both in place and time.

*Arguments contra.*

1. If so, the extremities of all things would touch; distance would exist no longer, and all would be in confusion.

Similiter, tunc omne instans futurum est, quando quodlibet reliquum erit; et ita, ut videtur, omne futurum semper erit, quia tunc dedero tempus eternum, et tunc erit semper; ergo, omne futurum erit semper. Et per idem inmediate post hoc instans, quia tunc. Et illud *tunc* est inmediate post hoc; cum tamen deus erit semper, quia in hoc instanti quod est presens, non erit, cum per idem omne quod est inmediate post hoc est, et nec incipit nec desinit semper esse. Nec videtur color igitur michi negando consequenciam istam: *in B instanti hoc non erit* et *idem instans est vel erit aliquando: ergo aliquando hoc non erit.*

2. All future things would exist eternally, and immediately, after the present instant. And God, being in the future, would not be in the present.

Similiter, iuxta illud sequitur quod in magno tempore eterno Sortes est et non est, eo quod per idem quo Sor in illo erit (quia in aliqua parte eius), in illo eciam non erit (quia in aliqua eius parte). Confirmatur tripliciter; primo per hoc quod in illo tempore scietur non esse, et nunquam scietur non esse, nisi quando non erit. Igitur in illo tempore non erit. 2° per hoc quod, quandocunque illa proposicio sic primarie significans est falsa: *hoc est,* tunc hoc non est; sed in illo tempore erit falsa: igitur in illo tempore non est. 3° per hoc quod hec est falsa *per illud tempus, hoc est,* et sibi contradicit hoc; *in illo tempore, hoc non est,* igitur illa non est vera. Non enim contradicit sibi ista *per illud tempus hoc non est,* quia tunc contradictorie essent simul false. Propter talia communiter conceditur quando *illo tempore vel loco hoc est,* et *in illo eodem tempore hoc non est,* quia in aliqua eius parte.

3. A man would exist and not exist in the same eternal time; in a certain part he would, in a certain part he would not.

Proofs.

If a thing takes place in a certain part of a given time and space, it takes place then and there.

1. rn$^{li}$ B. 15. ded$^{o}$ B. 29. in nullo B. 41. eius *twice.*

On the other hand, if a thing is non-existent at any time, it is always non-existent; and yet it is existent at a certain time. What is non-existent at any time is so in eternal time, i. e. always; and what is existent, *vice versa*. We could also say that the world is not everywhere, because it is not in every part of space: so it is everywhere and nowhere; and so too of everything divisible into parts.

Sed contra illud videtur primo, quod si aliquid aliquando non est tunc ipsum semper non est, et per consequens nunquam est; et tamen aliquando est. Videtur quod ista singularia contradicunt. *In illo tempore hoc non est* et *in illo tempore hoc est*. Mirandum enim esset quod in omni tempore quo hoc est, hoc non est, et tamen in omni tempore quo hoc est, hoc est (demonstrato instanti vel alio quocunque subito). Omne igitur quod aliquando non est, in tempore eterno non est, et illud est semper: | ergo, omne quod aliquando non est B 153[b] semper non est. Et correspondenter dicendum esset quod mundus in omni loco non est, quia in qualibet parte maximi loci. Et sic ubique est et ubique non est iste mundus. Ex quo videtur quod significatum primarium huius proposicionis: Iste mundus etc. non ubique esset, quia cum illa sit universalis negativa: *In illo loco mundus non est*, videtur quod equipollet isti: *In nullo loco ille mundus est:* ex quo sequitur intentum. Et per idem sequitur quod omne divisibile in omni loco et per omnem locum non est; cum Sor in loco sibi adequate non est, sic per totum istum locum non est, iuxta opinionem istam. Et sic in omni loco abest. Omne tamen indivisibile non ubique non est, quia est dare situm indivisibilem in quo sic esset quod nulla pars eius foret in quo non esset.

It would follow that a man could exist after dissolution; that all things future are simultaneous; that as we shall exist when we are no more, we were before our conception; that everything will come to an end after it is ended &c.; which destroys the very notion of priority in time.

Similiter, pari evidencia vel maiori, *post hoc non eris* et *ante hoc non fuisti*, quia *tunc* non eris, et '*tunc*' erit post hoc. Quo dato, sequitur quod post corrupcionem tui eris; quia *tunc* (demonstrando tempus eternum), et tunc post corrupcionem tui: igitur. Sic enim conceditur quod omnia que erunt, simul erunt, quia in tempore eterno; quamvis in nullo eius instanti. Dato ergo quod post corrupcionem tui eris, et ante generacionem tui fuisti, sequitur per idem quod infinitum diu post corrupcionem tuam erit corrupcio tua. Et breviter, omne temporale post desicionem sui erit, et quodlibet instans post seipsum et ante seipsum est, et quidlibet quod incipiet esse, ante quidlibet et post quidlibet erit; et sic tollitur omnis prioritas vel posterioritas temporis, cum quitlibet quod est semper erit, sicut omne quod est

15. etc. *deest* B. 26. h[e] p[o] B. 36. def$\eta$co$\bar{3}$ B.

27. I think that 'tunc' is here taken as a substantive.

ubique est. Et per idem corruptibile ante omne instans non fuit; et per consequens post omne instans non est; que contrariuntur prioribus.

Quantum ad illud dubium constat quod difficultas stat in significacionibus terminorum. Videtur ergo michi probabile quod nulla sunt simul tempore, si non sunt simul in eodem instanti temporis, licet omnia sint simul secundum esse intelligible pro instanti eternitatis. Aliqua autem esse simul in loco possunt intelligi 3$^{r}$. Primo, quando sunt per eundem locum, sicud deus et creatura, forma et suum subiectum. 2° modo, quando ultima locatorum inmediate constituantur; ut corpora, vel quecunque alia se tangencia. Et 3° modo, quando idem locus, quantumcunque amplus, continet utrumque; et in quolibet istorum trium sunt quotlibet gradus. Et sic omnia sunt localiter simul in mundo, et non temporaliter simul secundum exigenciam in genere; quia idem indivisibile temporis continet quotlibet temporalia secundum se tota; non sic autem de indivisibili loci. Ideo noviter restringitur simultas temporis plus quam loci. Quod si loycus non contentetur de casibus huiusmodi, dicat quod omnia simul sunt temporaliter sed non instanter, vel in quocunque tempore; sed in maximo tempore sempiterno non contendo. Sicut enim omnes partes mundi collective sunt simul localiter, sicut exercitus, quamvis per se distarent ab invicem, sic omnia instancia et partes temporis possunt simul dici in magna tempore eterno. Stat enim duos comites ire simul, licet non sint inmediati; nec differt talis simultas a simultate qua locata sunt in quantumcunque magno loco, nisi secundum magis et minus.

B 154$^{a}$ Tenendo ergo istam logicam, potest dici quod tota | prima deduccio non procedit propter equivocacionem. Extendendo ergo hoc adverbium, *simul,* ad omnem essenciam in loco et tempore, potest dici quod prima deduccio non procedit propter equivocacionem in simultate, cum illa tangunt se que sunt posita secundum se vel aliquas earum partes sine aliquo situaliter intercepto, ut sunt res inmediate habentes partes. Unde stat quantumlibet distancia habere aliqua eorum simul, cum cuiuslibet subiecti accidens sit per totum mundum. Nec sunt

This is a question of which the difficulty consists in the sense given to words. I think that *simultaneity* must imply the same *instant* of time. But beings may be in the same place, either (1) coexistent throughout the whole, or (2) touching each other in a given part of space, or (3) merely contained in any way in space. All things are together in space, but not in time; many things can be simultaneous, i. e. at the same instant, but no two can coexist in the same point. Or we may say that all is simultaneous, but not at the same instant, only in eternal time.

*Answers to arguments.* 1. This is solved by noting the difference of sense of words. If *together* be extended to all space and time, extremities of things will not necessarily touch.

19. nout' B. 21. gtent$^{r}$ decais B. 26. dist$^{ent}$ B. 32—33. Tenendo—equivocacionem *sic* (!) B.

*Together* is used now in a wider and now in a stricter sense.

conclusiones posterius reducte et inconvenienter, cum sint quilibet gradus in simultate; ut aliqui sunt simul in provinciis, simul in patria, aliqui in villa et aliqui in domo, et aliqui striccius.

2. Everything future must exist in eternal time; but there is a quibble in the argument. *Always* may mean "eternal duration", or "throughout eternal duration", or "in eternal duration". *What is future is always* is true in the last sense only.

Ad 2$^{m}$ conceditur quod omne futurum est quando quidlibet est, quia eciam magno tempore eterno, sed non sequitur quod *hoc tunc est*, et *tunc est semper* vel *inmediate post hoc; ergo*, *semper est*, propter equivocacionem in *li* "semper". Nam ipsum potest teneri in habitudine nominativi casus, vel ablativi casus, vel accusativi casus, ut sic: hoc est semper unum sempiternum *quando* vel *per omne quando* vel *in omni quando*. Tenendo ergo minorem argumenti facti ad secundum sensum, tenet consequencia; et alter equivocando non valeret. Ulterius facilius est videre quomodo deus, mundus, et similia, semper erunt; quia in omni tempore vel instanti; et per consequens omne tempus vel instans erit; et sic hoc instans (quod est presens) erit quod post hoc instans quodlibet ipso presens; primum autem instans mundi est post instans eternitatis, quia naturaliter posterius. Nec sunt iste differencie temporis contrarie, presens, preteritum, et futurum; sicud magnum et parvum non sunt differencie contrarietatis quantitatis. Sed bene repugnat idem tempus respectu eiusdem instantis temporis esse secundum totum presens, preteritum, et futurum. Idem tamen tempus quod iam est presens, prius fuit futurum, et postea erit preteritum. Notandum tamen quod hoc adverbium, *semper*, sicud hoc adverbium *nunc*, potest nunc sumi adverbialiter nunc nominaliter, et ut plurimum non est differencia quo ad sensum. Unde semper potest nunc sumi pro quocunque tempore perpetuo, et nunc pro maximo tempore similiter, et 3$^{o}$ pro quacunque completa periodo. Ex quo patet quod stat Petrum et quodcunque perpetuum quod incipit post primum instans temporis, semper esse; et tamen aliquando non esse, accipiendo primo modo et 3$^{o}$ modo.

Past, present, and future are not contrary but relative, as magnitude and smallness; it is only impossible for the same time, relatively to the same instant, to be completely present, past and future. *Always* and *now* may be taken either as substantives or as adjectives, usually without change of sense.

3. It does not follow, because a man is non-existent in a certain part of a time, that he is non-existent in that time;

Ad 3$^{m}$ dicitur quod non sequitur: *Sor in aliqua parte illius temporis non est*, igitur *in illo non est;* eo quod consequens convertitur cum ista: *Sor non erit in isto.* Nec sequitur argumentum *a simili;* ut si aliqua pars

6. quilibet B. 9. albt$^{\widehat{ivi}}$ B. 19. ipo' B. 31. f$\widehat{cu}$ *pro* sumi B.

illius videtur a te, et tamen non oportet si aliqua pars illius non videtur a te, quod hoc non videtur a te. Ad primam confirmacionem negatur maior, quia negacio, si est, est eterna. Per idem negatur assumptum 2^e^ confirmacionis. Et ad 3^am^ dicitur quod universali affirmative asignate confirmacionem contradicit hoc: per aliquam partem istius temporis successivam hoc non est, et neutra assignata ibidem.

if you do not see part of a thing, it does not follow that you do not see the thing.

Hoc tamen non potest teneri, nisi a concedentibus continuum componi ex non quantis; quia motus terminatus ad dandum instans exclusive non durabit per tempus terminatum ad illud instans inclusive, nec per aliquam partem illius temporis non est, nisi ultimum instans ponitur pars illius temporis. Et conformiter dicitur, capiendo divisionem, mortem, vel unum tale cuius non est dare mensuram in tempore, 2^m^ negantes composicionem continui ex non quantis. Nam tale semper non erit, sicut semper scietur esse falsum quod hoc est; et tamen aliquando hoc erit, quamvis nunquam
B 154^b^ erit ita quod hoc est, ut | communiter dicitur. Illi enim assenciunt semper tali proposicioni, *Semper scietur hoc non esse;* et tunc oportet eos concedere quod, dato illo tempore, in illo scietur hoc non esse, et in illo non scietur hoc non esse, et per hoc tempus a principio usque ad finem, et in illo non scietur hoc non esse. Et per hoc tempus a principio usque ad finem iam divisio non erit vel complecio pertransicionis, vel unum tale cuius non est dare mensuram adequatam; et in illo tempore, et in infinitis partibus eiusdem, hoc est. Non enim contradicunt ista, nec talia in similibus terminis huius vie assignata; per *hoc* tempus, *hoc* non dividetur. Notum enim est quod pari evidencia quo mundus durabit per tempus sibi adequatum, eadem evidencia hoc semper non dividetur; quia per omne tempus et per omne instans, et aliquando dividetur, sed nec per tempus nec per instans. Ideo oportet concedere quod in aliquo tempore hoc dividetur in quo non dividetur; et per consequens omnia superius reducta sunt sequencia ex illo. Vel mutando proposiciones in contradictorias qualitates est undique difficultas dare

To maintain this, however, we must grant that the Continuous consists of non-continuous elements. If we do not, instantaneous events, not forming part of time, will always be non-existent and yet will exist at a certain time, as in the case of cognition, and division.

There is in every case a difficulty to find the

3—4. neo B. 4. am B. 6. asignate B. 7. fuctra B. 27. ptuonis B.

contradictories of such propositions, if we do not admit that the instantaneous is a part of time: for though God must always know when a given line is not divided, He can never know it, supposing that the division takes place.

contradictoria. Ut sic dicendo: *semper scietur istam lineam non dividi,* et *semper non scietur istam lineam non dividi.* Certum enim videtur, secundum communem opinionem, quod quandocunque deus erit, sciet illam, lineam non dividi in casu communi, quia in omni tempore et in omni instanti. Et notum est quod oportet particularem negativam quantumcunque aliquam horum trium in aliquo tempore, vel in aliquo instanti, vel per aliquod tempus vel instans, non scietur istam lineam non dividi: relinquitur quod in tempore non scietur istam lineam non dividi. Constat quod non est signare tempus, quin in illo scietur istam lineam non dividi.

I grant that if division takes place, it is either temporal or instantaneous, and an instant is a part of time.

Relinquentes igitur istam difficultatem contrarie opinantibus, concedo quod si divisio vel aliquod tale est, tunc est per tempus vel per instans; et concedo quod instans est pars temporis; et repugnant ista, *semper,* et *aliquando non; per omne quando hoc est,* et *per aliquod quando hoc non est,* accipiendo hoc adverbium *semper,* ut generaliter dicunt, pro tempore vel instant. Et patet quomodo non sequitur si *in aliqua parte temporis vel loci Petrus est,* tunc *in illa est.* Ergo per idem, si *in aliqua parte talis mensure non est,* tunc *in illa mensura non est.* Nec deus unquam scit aliquid non esse quod nunquam fuit, vel est; quia cum deus non potest incipere vel desinere quidquam scire, sed omne quod scit eternaliter scit, sequeretur quod deus simul sciret illud esse et illud non esse. Ideo, ut alias sepius dixi, nulla negacio potest incipere vel desinere esse; nec est mutacio de contradictorio in contradictorium, cum non sit contradiccio ex parte rei. Sed mutacio est ab infinite opposito (ut sic loquar) ad infinite oppositum; ut a non albo, a non vivo, et sic de aliis negacionibus ad album, vivum, et sic de aliis terminis positivis. Tunc autem tenetur negacio infinite, et debet proposicio inferri expositorie; ut sic: *ab aliquo quod est non album* vel *non vivum* etc. *pro danda mensura est mutacio ad album* vel *vivum,* etc. Sed non sequitur: *hoc non est album* vel *non vivum pro illo tempore,* et *illud tempus est:* igitur, *hoc non est album vel non vivum.* Sed potest concedi quod idem ut album et non est album, licet

So it does not follow that *to be in a certain part of time* implies *to be in that time;* nor that *to be non-existent in a part of time* implies *to be non-existent in time.*

There cannot be a change from one contradictory to another. Change implies infinite opposition, and we must expound it thus: from that which is not A, B, ... &c. at a given time there is a change to that which is A, B, &c. But we cannot infer that a thing is not A, B, &c., because it is not so at a certain time.

1. contradicta B. 11. f.refre B. 23. aliud *quite plain* B. 32. mutacionibus *pro* sic de aliis negacionibus B. 33. terminis *twice* B.

non simul et semel, sed divisim. Et talia opposita vo-
B 155a cantur contradictoria | incomplexa.

Tenendo ergo negacionem utrolibet pure negative, et non infinite, negandum foret aliquid una vice album esse non album, licet sit non album tunc. Et patet quod non est concedendum quod divisio illius linee aut equalitas Sortis ad Platonem semper secundum partem; quia in omni tempore et in omni instanti temporis, sed non in omni tempore nec per omne tempus erit secundum se totum; quia in magno tempore est $2^{m}$ se totum. Nec sequitur: *in aliqua parte illius temporis hoc non erit;* igitur, *in omni tempore hoc non erit.* Nec sequitur: *in aliqua parte illius temporis hoc non erit;* igitur, *in omni tempore hoc non erit.* Nec sequitur quod in quocunque tempore aliquid desinit esse, quia in illo tempore ipsum non erit, sicud non sequitur, si A in aliquo loco deest, quod in illo loco non est. Non ergo sequitur: *Aliquando non erit A; igitur in maximo tempore non erit A,* cum idem sit *tunc non erit A* et *ipsum A non erit tunc.* Nec est color in illa deduccione: *tunc eris,* et '*tunc*' *erit post corrupcionem tui; ergo post corrupcionem tui eris,* demonstrando tempus eternum. Sicut in *a simili* non sequitur: *super illud spacium ambulabis, et illud spacium est de ultra mare parisius, igitur ibi ambulabas.* Et sic de similibus demonstracionibus dicendum est.

In this sense we cannot admit that anything which is at any time white can be simply *not white*: it is not white *now*.

And thus non-existence in a part of eternal time cannot be called non-existence in that eternal time.

And thus it does not follow that a man can exist after his dissolution because he exists in time, and time is endless.

Sed notandum quod, ad loquendum logice in illa materia de temporalibus, preexigitur noticia temporis. Quamvis homo in infinitum laborando non cognoscit quid est tempus (loquendo proprie de quidditate temporis, ut dicit absoluta essencia que potest per se esse), tamen contingit cognoscere quod tempus sit quantitas successiva, mensurans motum: quam quantitatem alias declaravi esse duracionem mundi in *esse* transmutabili; intelligendo per mundum maximam multitudinem creaturarum quecunque fuerint. Et sic tempus nostrum est mundum durare in *esse* transmutabili.

Et ex istis cum aliis veris sequitur quod tempus incipit cum mundo et manebit eternaliter cum mundo; posterius tamen est naturaliter quam mundus vel motus

Here we require to know something of time; not what it is in itself; that is impossible; but that it is a measure of successive motion, and the duration of the world in its mutable entity. It follows that time began with the world, with which it will last eternally, and

16. quod B. 18. aly B. 23. assimili B. 25. prſuis B. 32. q$^{u}$s B.

to which it is posterior in its nature. It was necessary to the creation of the world, as space was, but not to its essential being.

iugis. Licet enim preexigebatur tempus ad creacionem mundi, sicut locus ad incepcionem sue locacionis, neutrum tamen preexigebatur ad *esse* mundi, sed econtra. Et sic credo quod non est possibile mundum esse sine tempore, et per consequens quemcunque motum indifferenter potest consequi illud tempus. Non enim potest creatura esse mundus, nisi fuerit duracio eius in *esse* transmutabili: quod est tempus.

Thus time is not necessarily dependent on the First Mobile, since that might cease to move.

Et patet quod non essencialiter sequitur motum primi mobilis; quia possibile est motum istum cessare, manente eodem tempore. Unde prius naturaliter est motus dictus communiter quam est motus orbis celestis.

An instant is an indivisible part of time, which consists of instants as its elements. The duration of the world, at first one instant, became greater by the addition of many more; every one requiring another to succeed to it.

3° patet ex dictis quod instans diffinitive est indivisibilis pars temporis. Non enim est possibile continuum esse, nisi componatur ex non quantis, et per consequens non restat nec quantum [quod] componeret tempus, nec instans. Unde duracio mundi causata primo ex indivisibili aquisicione variatur instans; ut mora mundi, dum unus est punctus, aquirit situm indivisibilem. Ex quo patet quod non est de racione instantis quod compleat tempus preteritum cum futuro, nec potest instans per se | esse instans sine successione novi instantis. B 155b

Time and its instants are absolutely without bulk: the duration of our world is absolutely the same everywhere in the world, and without parts. If the world is animated, then its soul is immaterial and ubiquitous; but the duration of the world itself is not the same as that of any of its parts, of which it is itself the cause.

4° patet quod necessario sunt tempus [et] instans non divisibilia $2^{m}$ molem, et per consequens secundum latitudinem et profunditatem. Nam *istum mundum durare* est ad omnem huius mundi punctum, et non habet partes mole magnas, ut motus; ergo multiplicatur per totum mundum. Quod si mundus habeat animam, tunc mundus est due nature, quarum altera est incorporea et multiplicata per totum mundum sensibilem, sicud dictum est de homine. Non enim est duracio mundi continua ex duracionibus suarum parcium; tum quia quelibet duracio mundi est tempus vel instans, et sic alterius racionis quam duracio partis mundi, que est *quando*, causatum a tempore; tum eciam quia, corruptis (per inpossibile) partibus mundi, manet continue idem mundus, et eadem est duracio. Ideo duracio mundi non aquirit motum istius partis nec disposicionem

1. iuge B. 17. non B; *ib.* q͡ꝫ$^{om}$ (?) B; quod *deest* B. 19. mo'a B. 25. fu͡t B; *ib.* et *deest* B. 37. q͡u c͡atu͡ at$^{e}$ B. 38. manet͡ P.

alterius accidentis extensam, sicud requirit motus sensibilis esse. Ex isto patet quod idem tempus est, et idem instans aut instancia sunt ubique, sicud ubique est duracio mundi huius.

Unde alias dixi quod 5$^{ter}$ ens dicitur esse ubique: primo modo, ex hoc ipsum est maximum mole, replens omnem situm, sicud mundus; ab omni tamen parciali situ deest aliqua pars mundi, cum ipsum non secundum totum sed secundum partes sit ubique. 2° modo dicitur accidens mundi multiplicatum esse ubique secundum informacionem et efficienciam, ut tempus et relaciones subiectate in mundo sunt ubique. 3° modo dicuntur universalia esse ubique, ut universale corpus, universalis quantitas, que ubique habet singularia, infinitas tamen partes subiectivas habent talia universalia, secundum quas non sunt ubique. Quarto modo veritas dicitur concomitanter esse ubique, racione sue cause illimitantis ipsum ad situm parcialem, ut dictum est de negacionibus et aliis veritatibus. Sed quinto modo et validissimo dicitur esse singularis essencia ubique, que nulli loco potest deesse 2$^{m}$ aliquam eius partem possibilem: et tale dicitur replere mundum, quia est prima radix quare aliquid est ubique; et, si sit aliquid [quod] sic sit ubique, tunc ipsum est deus.

A being may be said to be everywhere 1. as the world, of which, however, each part is only *somewhere*. 2. As time and relations, of which the power and efficiency are in all space. 3. As the universals that have their individual subjects everywhere: 4. As Truth which everywhere accompanies its cause that produces it. 5. As God, whose essence fills the whole world without parts.

Sexto patet quod tripliciter aliqua dicuntur esse in tempore; primo modo ut corruptibilia, que iniciata sunt post tempus, et desinent in tempore. Talia enim includuntur in tempore, tam quo ad inicium quam quoad finem sue duracionis. Ideo proprie sunt in tempore, sicut aliquid proprie est in loco quod replet locum undique circumdantem. Talia enim habent tempus extra suam duracionem et continue veterascunt cum tempore; ut patet de corporibus mixtis et aliis corporibus. 2° modo dicitur pars temporis, ut instancia qua vel alienas partes continue esse in tempore, non tamquam extrinsecus mensurata, ut motus et alia extra essenciam temporis; sed tamquam partes inexistentes principiantes

Things can be called temporal because they are corruptible, having both beginning and end in time; others (as instants) are temporal as being the very parts of which time consists;

6. p'a° B. 9. 2°° B. 17. illitat$\tilde{e}$ B. 23. quod *deest*. 25. Sex° B. 34. $\overline{qa}$ B.

34. *qua*. The word may be *contra* just as well; but as some other words are doubtless wanting, no sense can be made with either word.

tempus. Unde non sufficit ad *esse* in tempore, quod temporaneum sit, dum tempus est, ut videlicet propter hoc sit in tempore, sic quidlibet *esse* in quolibet, quia quotlibet est dum quodlibet est. Oportet | ergo invenire B 156ᵃ aliam racionem essendi in tempore quam est *esse* cum tempore. Et propter hoc negatur communiter eterna, que nec senescunt nec veterascunt, esse in tempore. Verumtamen $3^{io}$ dicuntur aliqua esse in tempore ex hoc quod habent modos accidentales essendi mensuratos tempore; ut corpora eterna habent motus secundum quos sunt in tempore, et deus habet quotlibet relaciones sibi adiacentes secundum quas dicitur esse, fuisse et fore secundum prius et posterius, quamvis aliter quam res create.

others, because they have accidental modes of being that are measured by time.

Et sic patet quomodo intelligitur tempus esse per se causa corrupcionis, et per accidens causa generacionis. Quamvis enim nec tempus nec accidens aliquid possit agere, tamen potest facere multa bona, sicud et alie qualitates que non sunt de genere activorum. Dicitur ergo; tempus est per se causa corrupcionis rei corruptibilis, quia, dum corruptibile est productum, inevitabile est quin tempus faciat ipsum antiquius et debilius ad durandum, abiciendo ab eo eius principium; ut in mixtis que dicuntur solo tempore veterascere, facit tempus adiacens, causando suas antiquas formas esse debiliores ad servandum humidum in illis quo continuantur partes et disponuntur ad subiectandum formam; ideo incinerantur et veterascunt dispariter secundum modum sue radicalis conglutinacionis; et possunt dici continue inevitabiliter corrumpi. Sed tempus mensurando non *esse* rei ante eius generacionem, non facit quod inevitabiliter ipsa est in fine; ut patet de contingencia rerum, que dependent ex libero beneplacito dei, cum possit esse quod talis res nec generatur nec generabitur; et sic inevitabiliter facere quod datum generabile sit, est per accidens causare eius generacionem.

How time is in itself a cause of corruption, and a cause of generation by accident.

Time, by removing corruptible beings from their origin, necessarily renders them weaker;

as in compounds that become old and fall away by the mere action of time.

But though time measures the non-existence of a thing before it is produced, it does not cause its production necessarily at the end of that period. If it did, it would be its cause by itself.

Unde, si inevitabile sit quod post finem talis temporis A effectus generabitur, concedendum esset ad sensum expositorium quod tempus est per se causa generacionis illius, sicud est de partibus temporis, etsi contingencia

4. quotl3 B; *ib.* q,l3 B. 8. 3r B. 25. antiquiᵗᵉˢ B. 28. ⁊ cineaũtᵉ B. 40. 9ᵃ B.

aliqua sunt futura inevitabiliter determinate post lapsum temporis. Tempus enim, et omne successivum dicitur esse de se corruptibile; quia si aliquando est, tunc est in *corrumpi*, cum deus non potest servare omnes partes cuiuscunque successive simul pro eodem instanti. Sed diffinitive et differenter a permanente, successivum videtur definiri *quantum cuius non omnes partes possunt esse simul instanter permanentes.* Permanens autem proprie: "quodlibet ens per tempus durabile cui non est inevitabile habere partes in *generari* et *corrumpi*". Et talium sunt multi gradus; ut successiva sunt proprius permanencia quam mixta, cum materia hominis sit incontinens fluxum. Si autem instans et indivisibilia vocantur equivoce permanencia, hoc est equivoce.

Time is corruptible in its very essence, being always in the act of mutation; the *successive* is distinguished from the *permanent*, in that its parts cannot coëxist.

Dictis istis in communi in tempore, videndum est profundius, persecutando quid sit tempus realiter. Sunt 3 opiniones famose de illo, quarum prima, perturbans bonam doctrinam ex sua ignorancia, ponit quod omne tempus, sicud et omne accidens, sit substancia. Et sic sunt filii huius erroris tripartiti; ut aliqui dicunt omne
B 156b tempus esse deum, alii ponunt omne tempus esse | mundum; et alii, omnem rem durabilem esse tempus. Hii autem, volentes antiquare opinionem suam, habent concedere quod semper fuerunt et semper erunt, quia per tempus eternum. Et tamen non possunt durare, nisi per instans, cum sit omnis substancia, vel deus sit solum instans. Et sic, si aliquid incipiet vel desinet esse, inmediate post instans quod est presens incipiet vel desinet esse; et sic de preterito. Et perit omnis certitudo de rei diuturnitate, cum nemo potest quitquam facere, nisi per tempus eternum fuerit in faciendo illud. Et sic perirent omnes policie, cum nemo potest secure iudicare de etate alterius, nec diuturnitate operis, nec de prioritate aut posterioritate temporali, de quibus naturaliter innatum est politicis communicare.

We may now inquire what time is in itself. There are three principal views, the *first* erroneously positing that time is identical with the substance either of God, or of the world, or of anything permanent. It would follow that all things are eternal since time is eternal, yet they cannot last longer than an instant, as time does. This doctrine would destroy all certitude as to the duration of things.

Et quamvis tam confusa insit istis congnicionem de tempore aut cognicio, tamen pompant se scire in quo instanti sit dies iudicii vel quecunque coniunccio, opposicio, sive effectus futurus, quia in instanti proximo futuro, componentes divisibiliter tempus. Ymmo, si

Yet those who maintain this say that they know when any event will take place; i. e. in the future. But past, present

1. futa$^{r}$ B. 4. cor$^{\rho}$p$^{i}$ B. 7. vi$^{r}$ d$^{\overset{i}{r}}$ B. 10. ineni$^{le}$ B. 18. pt B.
36. tangnic$^{\widehat{om}}$ B.

and future are all one to them.

diligenter examinentur patebit quod non refert illis dicere quidquam fore, esse vel fuisse, cum utrobique sequitur quocunque tali vocatur pene idem tempus, de quo non refert enuncciare hoc non fuisse vel fore; quod natum est destruere omnem veritatem. Patet eciam quod omnia que opinati sunt auctores vel wulgus de tempore forent falsa. Unde, quando philosophus dicit cum plebeis quod sepe volvebatur celum, causando dies, menses, et annos, ista stulticia dicit quod nunquam nisi semel, quia solum uno die, qui sunt omnes dies, et cum mobile sit idem, spacium idem, et tempus idem, omnis revolucio que fuit erat revolucio tunc futura. Et examinetur ista posicio in quacunque sciencia, et invenietur maior fatuitas sollicitari circa eius probacionem quam ipsam dimittere tanquam patenter erroneam.

They contradict both philosophical and ordinary language to such an extent, that it is wiser not to confute them, and to set their opinion aside as evidently wrong.

The *second* opinion posits that no successive being *is*, but either *was* or *will be*. If so, then neither movement nor time is even possible: what never *is*, cannot be.

Secunda fabula, interimens multas disputaciones, dicit quod nullum tempus, motus, aut successivum, est, sed fuit sic et erit. Contra quam viam alias diffusius argueram, probando quod ex hoc sequitur nullum successivum huiusmodi posse esse; quia, cum motus, si est, denominabit mobilem moveri, et tempus rem temporaliter durare, patet, si non est quod mobile movetur vel durat, non est motus vel tempus. Et sic nec motus potest esse vel fore; quia quod mobile successive movetur, non potest esse vel fore. Nam quod mobile movebatur est eternum, et per consequens non est motus.

God cannot know the existence of movement;

He can only know that a thing will be moved; if He knew the existence of movement, movement would exist. If God's knowledge of a successive thing is continuous, the the thing known must be so too;

Item, iuxta hanc viam, deus non potest scire motum esse; quia si non potest scire quod non potest esse, igitur non potest scire quod motus [est], vel motum esse, quod idem est. Et per idem non potest scire mobile moveri, sed motum iri. Si enim deus aliquando sciret motum esse, aliquando illud scitum esset. Magna igitur perversio foret dicere quod deus non potest cognoscere illud quod philosophi vere ponunt sensibile commune, ab omni sensu noscibile. Sciencia enim vel est actus, vel habitus, vel relacio que non potest esse, nisi fuerit in instanti.

Item, sciencia qua deus vel creatura sciret motum esse, vel est continua | vel interrupta. Si continua, B 157ᵃ tunc iuxta hanc viam scitum manebit continue. Si interrupta, per idem in quolibet instanti erit interrupta,

3. p͡ᵉ *pro* pene B. 16. int'imes͡ B. 29. est *deest* B. 31. ire *or* rre B. 32. esse B. 40. situm B.

et sic ultra indivisibilem intercisa; quia sciencia nec est instantanea vel temporalis, sed semper nescitur nesciencia in deo vel qualibet creatura respectu motus vel temporis. Ex istis videtur quod motus non erit continuus quo ad tempus, quia continue scietur a deo non esse; quia in omni multitudine instancium in qua est quodcunque tempus. Aliter enim nullum esset instans temporis. Si enim instans est instans temporis, tunc est tempus in instanti; quia nec diu nec in instanti potest aliquid manere instans temporis. Et per idem, si est proporcio temporis ad eius medietates, vel aliter partes proporcionales, est dare instans proporcionis huiusmodi, sicut instans continuacionis, iniciacionis, et finicionis temporis; et aliter superflueret distinccio temporis $2^{m}$ gramaticos et loygycos in presens, preteritum, et futurum. Ymmo omne verbum esset presentis temporis; et sicud nullum tempus foret in instanti, sic nec in aliqua eius parte, et per consequens omne tempus per se totum non foret, et tempus eternum non potuit fore vel fuisse, quia nec iam nec post hoc.

if intermittent, it must be so at every instant, and will thus go beyond indivisibility itself.

A given time must be the double of its half, and if so, there is an instant at which this proportion is verified; otherwise why make a distinction between past, present, and future? All would be present.

Est autem modus loquendi philosophorum et theologorum loqui non sic arcte, sed extensive de tempore, ut patet 4° Physicorum, commento 88. Et ideo, 4° et 5° metaphysice, de priori, 8° metaphysice et commento 5°, dicitur quod cena differt a prandio $2^{m}$ partes, et conformis est applicacio, libro 9° et 14° et libro 12°. Ymmo omnes sciencie sic locuntur. Unde propter tales evidencias fui primo motus ad ampliandum tempus, quia non vidi quomodo philosophus vel theologus posset negare huiusmodi successiva. Nec capit ingenium meum quod sint continua, nisi componantur ex partibus existentibus. Sicud ergo medium instans illius hore copulat medietates omnes ad invicem, sic illa copulantur, causantes tempus, continuacionem, prioritatem, corrupcionem, scienciam, ut philosophi vere dicunt. Nec aliter aliquod instans vel aliquod aliud posset esse reliquo superius aut posterius quo ad tempus, et sic instans iniciat, copulat, et unit partes temporis que sunt in

Yet there is a mode of expression in which the word *present* is really taken in a wider sense by philosophers and theologians, and this fact gave me the first idea of extending the sense of the word.

As the medial instant unites the two halves of an hour, so all instants are united with each other, some being intrinsic, others extrinsic to a given time.

7. enim est B. 16. $\widehat{\imath}\,\widehat{\imath}\,\widehat{\psi}\imath$ B. 22. arte B. 36. $\widehat{\text{sci}}^{\text{m}}$ B; *ib.* alt' B. 38. f,$^{\text{us}}$ B.

15. *Loygycos.* I have purposely preserved, here and elsewhere, such mistakes in spelling as leave the sense clear, while showing the copyist's negligence.

suis mensuris. Aliquod vero instans sic respicit partes temporis tanquam eis essencialiter intrinsecum, quia pars eorum, et aliquod tanquam eius extrinsecum, ut instans proximum priori. Nec aliter video quomodo verba sacramentalia, verba iurandi, et proposiciones policite quibus fiunt contractus forent vere. Ymmo nullus sonus vel tremor, nec actus discursionis anime possit esse.

Otherwise I do not see how the sacramental words, or oaths, or promises, &c. could be true.

If nothing is except at the present instant, all the rest of time must then be wanting;

Item, supposito quod nichil est, nisi in hoc instanti, patet quod quelibet pars temporis deest in instanti. Suppono autem quod *deesse* sit ampliativum, vel ponendo subiectum abesse a loco vel officio cui poterit applicari (ut localiter distancia desunt nobis, licet habeamus eorum possessionem), vel 2° ponendo rem que poterit esse [et] abesse ab instanti vel tempore pro quo est verum ipsum deesse. Sic enim perfeccio futura et vana gloria plene preterita desunt nobis. Ex quo patet quod utraque medietas illius hore pro medio instanti deest secundum se totam, et per idem omne tempus, et per consequens nullum tempus est in illo instanti, cum totum tunc deest. Et per consequens, cum nichil est, ut false asseritur, nisi illud quod in illo instanti est, nullum tempus esset; vel aliter, si aliquid est, illud semper est. Et ideo non est | possibile 2$^{m}$ istam viam B 157$^{b}$ quod deus semper est; quia si sic, quodlibet infinitum diu est, cum diucius quam semper nichil potest esse.

Thus in the middle of an hour, both halves are wanting; and so through all time; so there is no time at all, if anything exists, it exists for ever, and God is not eternal. But it is false that nothing is but in this instant.

Et sic de multis replicacionibus quas alias replicavi, sic loquendo de sciencia dei et eius determinacione et possibilitate rerum, restant quotlibet insolubilia vie contrarie que sunt fallacia isti vie. Ut, si deus scit aliquid, idem est, et necessario semper scit omnia que erunt vel fuerunt. Ideo necessaria omnia que erunt vel fuerunt sunt pro tempore suo, licet non modo. De inmutabilitate vero divine sciencie sunt dicta multa sanctorum et raciones, cum aliter foret minoris permanencie quam sciencia creature. Ipsa enim non continue variatur proporcionaliter ut cognitum variatur.

There are many other similar arguments that are unanswerable. For instance, as regards the immutability of God's knowledge,

Item, si deus se determinat facturum aliquid, tam certe cognoscit quod determinat se esse facturum illud, sicud ipse scit, quod ego determinavi me esse facturum

and the free determination of His will.

15. et *deest* B. 31. sit B. 39. fu B.

aliquid, sed propter determinacionem illud $2^{m}$ est necessarium, scilicet, quod ergo determinavi me esse facturum quodcunque: ergo, et primum. Ideo, sicud omne verum est necessarium absolute vel ex supposicione, sic omne necessarium absolute est contingens ad utrumlibet; quia quo ad causacione dei liberrimam, eque possibile est non esse sicud esse; que sentencia non potest sustineri nisi ponendo deum esse ante instans temporis, et posse eque non causare datum effectum sicud umquam potuit.

Et per hoc plane patet solucio ad antiquum sophisma de Cristo vidente quemquam in verbo, vel veraciter asserente quod dies iudicii est tunc. Sicud est necessarium quod Cristus sic vidit et dixit, ita est tam necessarium quod sic est. Et similiter sicut potest esse quod non sic est, sic eque potest esse quod non sic vidit aut dixit. Et solum in hoc stat vera solucio, quando omnia subterfugia sunt rimata. Nec aliter video quomodo potest logice sustineri vel defendi sensus scripture, dicentis nos omnes esse filios Adam, Cristum esse filium David et filium Abrahe, cum eius seminibus; quia cum quilibet nostrum ignorat geneloyam particulariter exemplative generacionem huiusmodi, oportet ad ultimum concedere quod dicti patriarche in magno tempore mediate generarunt illos filios; et per consequens, si aliquis sit filius talis patris, tunc habet talem patrem et alius habet ipsum filium. Ex quo sequitur quod relativa sunt convertibilia in tempore.

Answer to an ancient sophism relative to Christ seeing any one in the Word (when the person did not yet exist): as Christ saw, so it is necessarily. It is only thus that Scripture can be explained, saying that we are sons of Adam &c. We must extend present time from ourselves to the patriarchs and to Adam; thus only can we have such a one for father.

Unde alias posui adversantibus illum casum quod Petrus, Paulus, et Linus sint omnes homines, et Petro predestinato existente patre naturali utriusque sequencium prescitorum, sit Linus pater spiritualis Petri et Pauli, et sit Paulus pater naturalis Lini sine progressu ulteriori filiacionis. Quo posito, videtur quod cuiuslibet hominis filius est persona dampnata, ut patet expositorie isti vie. Et tamen alicuius hominis non omnis filius est persona dampnanda; quia aliquis filius hominis non est persona dampnanda, quia Petrus, qui est filius Ade, Abrahe, et alicuius patriarcharum qui non sunt modo. Nullus autem catholicus negabit quin, sicud Cristus fuit filius David et Abrahe ad bonum sensum, sic omnes

A case put: Peter is predestinate, Paul and Linus, are foreknown Peter is natural father of Paul and Linus, Linus spiritual father of Peter and Paul, and Paul natural father of Linus. Supposing them to be all mankind, the son of every man is damned, yet a son of man (Peter) is not damned.

15. sic B. 21. feib9 B.

We are sons of Abraham, and, by nature, of Adam. How is this, if we say that nothing is, but what is non existing?

posteri Judei, ut dicit beata virgo, eciam nos sequentes | B 158a ipsos in moribus, ut dicit Apostolus, sumus filii Abrahe imitatorii, et omnes nos filii Ade naturales. Nec occurrit michi quomodo restringentes tempus vere expriment sensum horum, cum secundum eos nec Adam generavit aliquem nostrum, nec aliquis nostrum descendit ab Adam; quia nec Adam pro primo instanti sui, nec ante, nec post, descendit de hominibus qui descenderunt ab Adam. Et per idem argumentum nec genitus de homine mortuo ante infusionem anime habet patrem; sed foret nude filius femine et non viri. Et sic de occisione hominis, de causacione sani distantis, de existencia oracionis, de successione generacionis et subiecti agregati ex diversitate sibi succedentibus, que omnia essent impossibile isti vie solvere, admisso modo loquendi autentico et wulgari.

They would also have to grant that a posthumous child has no father at all; and there are many other like difficulties.

All that was or will be is, each thing in its own time; this agrees with Scripture, philosophy, and vulgar speech, and solves all difficulties.

Intellecto itaque isto sensu benedicto, quod omnia [que] fuerunt vel erunt, sunt; singulum tamen tempore suo, ut locuntur tam philosophi quam scriptura, est facile respondere ad instancias. Nam auctores et wulgus naturaliter nunc laxant et nunc restringent pertinenter suo sensui; et sic distribucio ac negacio acomoda tollunt controversiarum apparencias.

A third opinion holds that time is a quantity which, though successive, can be indefinitely lengthened by Almighty Power. But I have proved that no individual quantity can be lessened or increased.

3a via dicit quod tempus et quantitas [sunt] continua, quasi multiplicata linea successiva, sed tantum profundatur in existencia accidencium quod ponit quodlibet eorum posse per se existere; et sic quamlibet partem temporis esse instans, posse quantumlibet diu prolongari ex dei omnipotencia, et quantumlibet indifferenter poni pro quolibet; contra quod alias diffuse argueram, probando quod nullum ultimum singulare quantitatis potest maiorari vel minorari; quia, cum ad talem motum requiritur aquisicio vel deperdicio quantitatis tamquam sensibiliter motum huiusmodi; sed una successiva idem subiecto, sed non idem numero quo ad tempus et partes intrinsecas. Tempus ergo est diuturnum ad quod alia diuturna per accidens debent reduci tamquam primam mensuram illius generis; quia si sibi accidentaliter inesset duracio, per idem et illi duracioni; et sic infinite.

1. u'ga B. 12. tacone taccione? B. 12, 13. exna aoris B. 18. que *deest* B. 22. *after* ac *an illegible word; looks like* ac *crossed off* B. 24. sunt *deest* B. 26. exnca B.

1. *Beata Virgo.* See Luke I, 55.

Item, si instans temporis posset quantumlibet diu servari, superflueret deum producere aliquod tempus, et per consequens illud instans foret divisibile successive et habens infinita instancia temporis generata continue; et sic ultimum singulare instantis non duraret, sed idem instans numero $2^{m}$ subiectum et non secundum formam, ut loquitur Aristoteles. Aliter enim tolleretur modus loquendi de prioritate instantis vel temporis, et per consequens successio. Si enim instans eternitatis non potest durare successive sine tempore distincto, multo magis instans temporis non potest sic durare. Aliter enim possent successive hore, dies, menses, et anni; et totum foret instans indivisibile secundum successionem. Et sic quilibet sciret prenosticare quando est dies iudicii, vel quodlibet futurum, quia in hoc instanti; et sic de aliis intricacionibus iacentibus super eos qui ponunt tempus quodlibet esse celum.

If an instant could last a long while, why should God have made time? That instant, besides, would be divisible and contain other instants. What would become of priority and succession? All would become one indivisible instant, and men would know perfectly when every event would take place.

Item, si per tempus posset sic durare, tunc quotlibet tempora possent succedere simul, et per consequens minus tempus parificari cuilibet maiori in diuturnitate. Et sic oportet ponere tempus habere aliam quidditatem B 158b preter duracionem, | quia omnia tempore eque diu durancia forent per illa, et per consequens deus prerogando quodcunque tempus cum reliquo, parificaret ipsa ad invicem; et sic instans, vel hora, et huiusmodi, per accidens forent huiusmodi. Vel aliter deus non posset sic servare quodcunque tempus cum reliquo. Nam tunc deus posset facere talia tempora simul incommunicanter currencia informare subiecta; et per consequens cuiuslibet essencie duracio ponendum esse tempus. Et cum nullum tempus per accidens sit tempus, quelibet temporis duracio foret tempus. Et per idem duo talia equalia possent simul componere $3^{m}$; quod foret omnimode superfluum intensive vel extensive; quia sit res per infinitum magnum tempus durare et *esse* quantumlibet brevis periodi; ut, posito quod infinite hore, simul currentes quo ad fines et inicia, constituant unum tempus quod foret infinitum magnum tempus preter magnitudinem molis. Talia multa possent excogitari contra vias huiusmodi, circa que, ut dicit Aristoteles, est magis fatuum sollicitari quam est fatuitas impugnandi.

If time could be lengthened out, a short time might be made equal to a long one, and time would require another essence besides duration; otherwise nothing could differentiate two different times. Every temporal duration would be time; and infinite parts of time would make up a time that is infinitely great. It is foolish to trouble oneself about such a theory.

5. id = idem? B. 12. fuccc$^{us}$ B. 18. p̲ B. 23. p̄rogando B. 29. in fore$^{u}$ B. 30. pom̄ B.

The denial of all accidents is very unphiloso-phical;

Et correspondenter dicitur ad opiniones negantes omnia accidencia esse; in hac evidencia: si sunt, tunc sunt res que possunt per se existere; que opinio nec est philosophica nec theologica sicud nec eius evidencia. Ideo accidens ex opposito metaphysice distingwitur a suo subiecto. Alias tamen, cum declarative supposui quod mundus sit universitas creata, que est unum compositum ex omnibus subiectis preteritis et futuris, moralibus et materialibus, cui insunt omnia accidencia; et *illum mundum durare in transicione successiva* est tempus, quod individuatur a mundo et genere motus, et mensurat omnem motum particularem. Et sic prius secundum genus sunt prius et posterius in analogo motus quod in tempore [est], licet prius fuit in tempore directe in tempore quam in aliqua specie motus. Et sic, licet nullius partis mundi duracio sit tempus, tamen principalissime secundum Aristotelem est tempus in primo mobili vel corpore celesti quod est quasi forma mundi. Verumtamen, si totus orbis celestis annichilaretur, vel omnino quiesceret, mota sola rota figuli, foret continue idem tempus. Et sic, cum pars mundi individuatur a tempore, patet quod absolute impossibile foret illum mundum, subiectum tempori, produci, nisi producatur cum tempore eodem modo.

subject and accident are contra-distinguished.

Time is the duration of the world in successive change.

It is now here in particular; and though it may be said to be in the first heaven, on account of its movement by which all is measured, yet if it should cease, and only a potter's wheel were to move, time would be the same.

Another time would mean another world.

Ex quo videri potest ulterius quod sicut nullum tempus vel instans potuit fuisse prius vel posterius quam fuit de facto, sic non potest esse novum tempus, nisi fuerit novus mundus. Nam instans eternitatis est omnino immobile quo ad gradum prioritatis, cum nullum instans potest esse priusquam instans eternitatis est de facto, eo quod habet gradum prioritatis summum possibile. Et inmediate post ipsum evenit primum instans temporis, a quo omnis prioritas vel posterioritas temporis mensuratur. Alia vero instancia sunt posteriora, ut ab eo magis distancia et esse priora quo primo instanti mundi singulariter propinquiora. Et cum nullum instans temporis potest sibi esse | propinquius, B 159[a] videtur quod nullum instans temporis, nec ipsum nec aliud, poterit esse temporaliter ipso prius, et per consequens mundus, tempus, et instans, cum eius simili-

The first of all instants is that of eternity;

the second is the first instant of the world's existence; the others follow in order, as they are nearer to or farther off this first instant.

5. exa'o B. 9. malib9 z malib9 B. 13. ſt' B. 14. est *deest* B; *ib.* drc B. 21. ī dinia' B. 24. eodcoo B. 28. nowus B.

bus erant ita primo temporaliter sicut de dei potencia potuerunt. Ex quibus videtur quod mundus non potuit fuisse eternus *a parte ante*, cum tunc quilibet dies noster esset infinitum cicius quam tunc foret.

Sed dimissa ista subtilitate logica et philosophica, videndum est quomodo locuntur homines plus pueriliter sapientes. Ipsi enim propter variacionem in logica sepe verbaliter contradicunt, ut sapientes concedunt quod homo est homo, licet modo nullus homo sit in actu. Ipsi enim ampliarent ad omne ens actuale, ad omne ens possibile et ad omne ens intelligibile, quia aliter esset intelligibile superius ad ens, et intelligibile superius ad *esse;* et sic *posse* non presupponeret *esse.* Et in isto homines multipliciter variantur; ut aliqui concedunt quod homo est semper quodlibet istorum terminorum esse, et negant quod homo est homo, nisi habuerit existenciam actualem. Unde illam proposicionem, *homo est*, sic converterent: *ens est*, vel *potest* vel *intelligitur esse homo;* unde negarent istam consequenciam: *Antichristus est, ergo est aliquid;* sed, est *intelligibilis* vel *possibilis.* Et ita concedunt quod non est idem dicere: *hoc est album* et *hoc album est album:* quia, ut dicunt, *hoc album* necessario *est album;* quia sic intelligunt: *hoc album est album: Si hoc album est existens, illud est album.* Illud negant quod necessario est album; et sic concedunt quod omne futurum necessario est futurum, sicut omne presens necessario est presens. Ad tantum ergo prodest taliter variasse, quod per hoc intelligi possunt auctores et sensus equivocantes.

We ought here to notice other modes of expression which are less philosophical and lead to apparent contradictions. The wise, extending entity to all things possible or thinkable, grant that *a man is a man*, even were there no men existing. But some will grant that a man is intelligible or possible, but not that he is a man, unless he exists. They say: *This is white*, and, *This white thing is white*, are not the same, the second meaning: *If this white thing exists, it is white.* It is useful to know these different points of view.

Probabile ergo videtur ampliari hoc verbum *est* ad connotandum omne tempus possibile, sic scilicet, preteritum et futurum, cum preter tale non potest esse tempus. Et communiter concedendum quod omne futurum vel preteritum est, quia in magno tempore eterno; sed non in quolibet instanti vel qualibet parte temporis; sicut omne quod est, est in magno situ mundi; et nulla tamen eius parte est omne quod est. Et possunt esse ad hoc 3$^{s}$ evidencie.

We prefer to use the wider meaning, extending, *is* to all future and past time. All *is* in eternal time, but not at every instant of that time A threefold proof of this.

Primo, quia sequitur ex opposito quod omne [quod] est, illud semper est, quia in instanti quod est presens,

I. Whatever is, is always;

5. locazphic͡a B. 14. zi͡tfto *pro* et in isto B. 39. quod *deest* B.

ut communitur exponitur. Si A instans aliquando est, et non est aliquod *quando* quin in illo A est, tunc A semper est. Et per idem, omne quod erit, erit semper, et omne quod fuit fuit semper, quia per omne tempus et omne instans. Et per consequens, omne tale foret sempiternum, quia a tempore per quod deus duravit capit eius quandalitatem. Pari enim evidencia qua conceditur quod quidlibet durat per omne tempus, concedendum est et [quod] quodlibet futurum durabit per omne tempus; ut patet ex dictis. Sequitur enim: *tunc erit ita quod hoc durat per omne tempus; ergo, hoc tunc durabit per omne tempus.* Sed ex alio latere negant quod deus vel aliquid semper erit vel semper est, quia solum per instans, sed multa fuerunt et erunt semper: que omnia cum consequentibus sunt nimis literalia. Et probacio omnium istorum pendet super isto quod, si aliquando erit quod *hoc semper est*, aliquando erit ita quod *deus scit quod hoc semper est;* et cum deus | nichil potest B 159b desinere scire, deus semper sciet quod hoc semper est, et per consequens semper erit verum quod *hoc est semper.* Et ita *hoc semper erit.* Concedendum est ergo probabiliter quod nichil semper est, nisi id quod est in omni tempore, utputa tale quod semper fuit et semper erit; sicud mundus et alia sempiterna que inceperunt esse. Sed deus ultra hoc est eternus, quia eius demonstracio est supra tempus. Ideo est prius tempore.

it follows that the future is always future, and the past always past.

It is too strict an interpretation to deny that God is always, because He exists only in one instant (of eternity). God's knowledge of everything is eternal; and therefore whatever is, is always, as the object of this knowledge. Yet we may grant that nothing is always except what is in all time or exists above all time.

Et sic intelligendi sunt auctores qui concedunt quod deus prius potuit produxisse mundum, sed ipse non potuit prius fuisse productus. Deus enim habet in eternitate *posse* ad producendum mundum; sed mundus non potest esse vel fuisse. Et ita est de omnibus similibus. Idem ergo est dicere quod *hoc semper erit* et *hoc erit semper*, cum adverbium sit adiectum, *nisi in illo tempore.*

Some writers say: God could have created the world before He did; but the world could not have been created before.

II. If all *is* not in eternal time, we must deny its existence, saying that it is made up of parts that *are* not.

2° confirmatur per hoc quod aliter negandum esset tempus esse, ut superius tactum est, quod nemo concipit; et quod tempus componitur ex partibus que non sunt, eo quod *componi ex aliquibus* est *causari ab illis*; et per consequens omne componens est, sicud omne *causare* presupponit *esse.* Nullum ergo tempus habet

2. alī B. 9. quod *deest* B. 34. adic$^{tm}$ B.

eius magnitudinem a partibus que non sunt; quia tunc magnitudo illa non esset, et per consequens tempus illud non esset magnum. Sed sicut tempus in nullo instanti haberet partes, vel saltem solum illas que continuarentur ad illud instans, vel haberent illud instans eis intrinsecum, sic correspondenter tempus pro nullo eius instanti foret magnum; vel aliter solum pro medio eius instanti haberet medietates, et solum posset habere duas quartas; et sic de aliis partibus aliquotis. Et solum quando iste partes non possunt esse, tunc sine dubio omne tempus maneret continue indivisibile, nunc magis, nunc $2^{m}$ quod essent partes vel non essent partes a quibus caperet eius quantitatem.

For at no single instant would time have existing parts, since nothing would *be* at any single instant.

Conceditur ergo quod omne tempus est divisibile, et habet omnes eius partes, sed non simul proprie; quia non pro eodem instanti, sed in magno tempore eterno, et sic alias prius et alias posterius. Nichil tamen habemus de tempore $2^{m}$ se totum simul, nisi instans. Unde necessario omne tempus est eque celeriter in *corrumpi* sicut in *generari*. Nec potest esse, nisi ita veloci[ter] corrumpetur et generaretur $2^{m}$ partes, sicud posset aliquod tempus corrumpi. Nec sequitur per locum *a simili* quod sicud ponam esse de rebus permanentibus, cuius non est possibile dare causam ponendo tunc esse rem absolutam que ponam per se esse. Patet igitur quod non contingit bene examinatum vere loqui in materia de tempore, diffiniendo tempus vel continuitatem, temporis prioritatem et alietatem, et ceteras proprietates accidentales temporis et instantis, nisi ponendo tempus componi ex non quantis, et ampliando hoc verbum modo quo dictum. Quomodo, queso, aliud foret ante vel post aliquod tempus vel instans, vel inter instancia, vel unum instans prius reliquo, si semper necessarium est nullum instans esse cum reliquo? Semper enim sciretur sic non esse.

Thus all time is divisible into parts, but none of them coëxist, and nothing of time is all at once, save the instant. It follows that time vanishes as fast as it comes into existence.

We cannot, therefore, affirm anything truly of time without positing its composition out of indivisible instants, extending the sense of the verb *is*.

3° confirmatur illud de fundamentali significacione vocabuli. Nam secundum precipuos hoc verbum rectum, *est*, significat mere substanciam, sicut pronomina, quia
B 160ª significat *esse* | , quod est essencia, non quomodo aliquam proprietatem accidentalem vel differenciam specificam a qua res caperet suam quantitatem, sicud

III. This can be proved besides by the very signification of the word. *Est* is the substantive verb, signifying essence, and not accident;

11. nc̄ B. 12. nc̄ B; *ib.* essentt B. 17. alſ B. 23. pom̄ B. 25 pom̄, B.

thus it does not connote time by itself. If it did, God in eternity would not know himself to be, since there would be there no idea of time. *Est*, therefore, stands for the present, without any addition, as in adjective verbs, and signifies merely existence, not genus nor species. Being therefore indifferent to time, *Est* signifies eternity, and, though used by grammarians in the present, it is indifferent to all time, and can be thus applied to any permanent truth. It does not follow, when we say that *something is*, that it must be at this instant.

faciunt omnia, non transcendencia; nec connotant de se aliquod tempus, sicud verba adiectiva; quia deus tunc non sciret se esse in eternitate subducto tempore, quod est impossibile cum in eternitate sit *esse* vel *fuisse* vel *fore*, cum eternitas sit "interminabilis vite possessio tota simul". Et hinc, secundum grammaticos, hoc verbum *est* significat pure presens tempus, sine successione connotata, et est verbum substantivum, non significans principaliter accidens adiciendum subiecto, sicud talia verba, *currere*, *movere*, *fieri*. *Currere* enim est motus adiectus *esse* rei, et ita sunt *quantificari*, *qualificari*, *referre*, *agere*, *pati*, *ubilitari*, *temporaliter durare*, *poni* et *habere*. Ista enim sunt novem genera accidencium adiecta substancie, que est esse vel essencia rei: ideo vocantur verba adiectiva. Et hoc verbum esse subiectum substantivum non predicatum in quod vel in quale, modo quo termini connotantes qualitatem rei, sed mere dicens primam questionem de subiecto, *quod est* et non *quid est* aut *quale est*. Et ideo ens non est genus, cum omne genus dicit quiditatem presupponentem questionem, *Si est*, vel *esse* rei cuius quiditas queritur. Patet ergo, cum hoc verbum, *esse*, sit causa indifferens ad tempus connotandum, principaliter significat eternitatem, quod libere potest homo uti ipso ad quodlibet tempus indifferenter connotandum. Et si obicias quod gramatici determinant ipsum ad tempus presens connotandum, dicitur sine dubio quod indifferens est ad omne tempus connotandum secundum gramaticam; quia posito quod semper fuisset ista proposicio: *Tempus est*, semper fuisset vera; et *hoc verum est* continue connotasset omne tempus, cum non caderet a sua connotacione, propter lapsum temporis. Unde et hoc nomen *tempus presens* omne tempus significat. Et ex istis patet quod non sequitur, *A est*, igitur *in hoc instanti;* sicud non sequitur *Sor currit*, *igitur Sor currit in hoc instanti* vel *in ista parte temporis*. Nec sequitur cum medio ponente hoc instans vel istam partem temporis

14. io' B. 16. ſubm ſbm B. 17. t'ino B. 19. quid non B. 23. significat principaliter significat B. 31. 9uotaſſꝫ B.

5. This definition is a famous one, given by Boetius (De Consolatione Philosophica, l. III. prosa 2. near the beginning), and generally adopted by Scholastics.

esse. Et isto modo intelligendi sunt sancti qui dicunt deo omnia esse presencia in eternitate, quia, ut dicunt, tempus adiacet eternitati secundum se totum, ac si qualitas mundi adiaceret deo qui faceret se esse ad omnem eius punctum. Nec dubium quin conceptus sic loquencium sit verus, quamvis quandoque videbatur michi extraneus.

All things are present to God in eternity; the whole of time being a sort of accident of eternity.

Sed contra illud argumentatur. Videtur enim primo quod omnia instancia possibilia sunt simul, quia in hoc magno tempore eterno. Et per consequens omne quod fuit vel erit est. Et sic nichil potest incipere vel desinere esse. Et per consequens, nichil potest corrumpi vel moveri, et sic omnia sunt eterna, quia intransmutabilia. Si enim Sors potest transmutari, ipse potest esse ubi, quantus, vel qualis non est.

*Objections:* 1. All possible instants are simultaneous, being in eternal time; all that was or will be, is; nothing can begin, or end, or change.

Videtur 2° quod omne quod eveniet necessario eveniet; quod si erit, est; et si est, determinatum est ipsum esse; et per consequens necessario est vel fuit quo ad deum. Ergo est tam determinatum hoc esse, quam determinatum erit unquam hoc esse; et sic mors cuiuscunque viventis est cum eius vita; nichil ergo reliquo
B 160b cercius | quo ad deum.

2. Whatever happens, happens necessarily. For what will be is; what is, is determined to be, as necessarily now as it ever will be.

Videtur 3° quod omnes contradictorie veritates simul sunt; ut puta *esse* et *non esse Sortis* simul sunt. Si enim mors rei est, tunc *non esse* eius est; et si vita eius est, tunc *esse* eius est. Cum ergo omnis mors vel vita que fuit, est, vel erit, est, sequitur quod omnes contradictorie veritates sunt. Et sic de contrarie, privative, et relative oppositis.

3. All contradictory truths exist at the same time: any individual's being and his not-being coëxist; so do life and death, &c.

Ad primum dicitur quod conclusio non sequitur; nec sequitur omnia possibilia simul esse possibilia inter se, quia multa sunt possibilia que nec erunt nec fuerunt nec sunt. Ymmo, quamvis omnia preterita et futura sunt, non tamen tempore simul sunt; sed unum est in tempore suo, et aliud in tempore suo. Nam ad *esse* simul in tempore, requiritur *esse* in eodem instanti in numero, vel secundum se tota, vel secundum aliqua ex quibus sequitur ipsa esse pro eadem mensura temporis. Sicud ergo non sequitur: *Ista sunt in magno mundo* et *sunt simul loco;* ita non sequitur: *Ista sunt in magno tempore; igitur, sunt simul tempore;* sed

*Answers.* 1. It does not follow that all possibles are possible together, for many will never exist. As to past and future things, they exist each in their right time. Simultaneity requires two things to be at the same instant and entirely together.

4. qs B. 12. n' B.

As two things in the world are not therefore in the same place,

requiritur instans mensurare illa que sunt simul vel 2$^{m}$ suas essencias, ut contingit de motibus subitis, vel secundum sua accidencia, ut contingit de modis essendi, accidentibus instantaneis, quibus sunt omnes res temporales. Sicud ergo non oportet res esse simul loco, quamvis relaciones earum sint simul, sic non oportet res esse simul tempore; et sic pretericiones aut futuriciones earum sunt simul, sed oportet unam vel partem eius esse per locum per quem est aliud vel pars eius. Unde Aristoteles concedit ultima contiguorum esse per eumdem situm indivisibilem. Quandoque autem locuntur philosophi largius de *simul*, tam tempore quam loco. Conceditur ergo a quibusdam quod omne tempus vel instans quod potest esse est, quia in magno tempore eterno, sed non omnis substancia que potest esse est, quia creditur quod multe substancie possunt esse que non fuerunt vel erunt. Et creditur quod alius mundus non potest esse; sed de hoc viderit philosophus. Et ita conceditur quod omne quod fuit vel erit, est. Verumtamen, quando superius negata sunt talia, hoc erit ad istum sensum quod fiunt in eodem instanti.

so they are not simultaneous, because they both exist in time.

Sameness of place and simultaneity may, however, be understood in a wider sense than the above.

Many possible things are neither past, present nor future; for they will never be.

What we deny is the simultaneity of all things in the same instant.

We also for the same reason, deny that nothing can begin or cease to be.

Everything is present to God according to the order of its being, and as only the Eternal one is properly in eternity, it follows that all things have their beginning and their end.

Ulterius dico quod non sequitur ex isto quod nichil potest incipere vel desinere esse, sed pocius sequitur oppositum; et cum omnis incepcio vel desinicio que fuit vel erit est, quia in magno tempore eterno, quelibet tamen in instanti suo, una prius et alia posterius. Quamvis enim omnia instancia possibilia sunt, non tamen simul, sed sunt deo presencia, et ita presencia, et tamen unum alio prius aut posterius, secundum elegantissimum ordinem. Nec ex hoc sequitur quidlibet esse eternum, sed nichil novum; sed pocius oppositum. Quamvis enim omne bonum sit in eternitate, nichil tamen formaliter est in eternitate nisi eternum. Novissimum ergo tempore est illud quod est post omne aliud in tempore. Et sic non repugnant sed consecuntur se in deo *primum* et *novissimum;* non tamen est recens aut senex.

Some assert that there is no 'last of all creatures', for there is an

Et dicitur a quibusdam quod non est dare similiter novissimam vel ultimam creaturam singularem, sicud est dare [primam], quia post omne instans vel

10. 9ligror$^{e}$ B. 18. uider't B. 21. etad B; *ib.* fuit B. 35. rpugt B. 38. El$^{r}$ B; *ib.* fim$^{r}$ B. 40. f$^{d}$ e da'e B; *ib.* primam *deest* B; prius *pro* post B.

creaturam erit instans et alia creatura; quemlibet tamen eternum *a parte post* potest dici novissimum quo ad tempus, quamvis in nullo instanti. Aliquid vero est novissimum quo ad hoc instans, ut res que in ipso incipit esse; aliqua est novissima dies quo ad tempus generacionis et corrupcionis; ut dies finalis iudicii. Sed B 161ª similiter novissimum | est solus deus, non sic quod sit inferior in ordine quam aliud, vel quod habeat *esse* vel perfeccionem accidentalem sicud partes mundi innovantur, sed, considerata quacunque novitate, invenietur ultra et extra illam aliquam novitatem, non secundum substanciam vel accidens absolutum, sed respectivum, cum causat omne in deo positum. Creatum est ergo secundum novas habitudines relativas, que vocantur *esse* accidentalia a quibusdam.

endless succession, yet every creature can be called last at the moment it begins to be,

and the Last Day is the end of generation and corruption. God is also the last, i. e. in time, since His existence extends beyond all future time.

Ad 2ᵐ dicitur quod conclusio bene concepta est concedenda. Pro quo notandum quod aliquod est necessarium absolute et aliquod ex supposicione. Absolute necessarium est, quod non potest non esse, sive sit prima veritas, sive veritas creata sine qua deus non potest esse, ut sunt *3ª et duo esse quinque, dyametrum quadrati sensibilis non esse cometram sue coste.* Necessarium ex supposicione est verum pro aliquo tempore habens causam ex quo sequitur illud esse. Et non dicit quod illud sit semper; et sic omne verum contingens est necessarium, quia si aliquid fuit vel erit, tunc est verum in magno tempore vel eternitate. Et si illud est, tunc deus habet unam volicionem eternam respectu illius vel sui convertibilis, ex qua sequitur illud esse; ut si Anticristus peccabit, deus eternaliter voluit quod peccabit, vel quod peccatum suum punietur; et isto modo volicio dei eterna est causa futuricionis pene.

2. We admit the conclusion, if properly explained. There are two necessities: absolute necessity, such as $3 + 2 = 5$, or, *the diagonal and the side of a square are incommensurable,* or hypothetical necessity, that is true at a certain time. God has an eternal will concerning all things.

Ideo, pari evidencia qua passivum comburiter de necessitate naturali causata ex applicacione calidi, sequitur omnem effectum esse necessitate supernaturali ex causacione cause eterne formaliter inferentis. Sequitur enim *determinate verum est necessarium, omne verum est determinate verum, ergo omne verum est necessarium.* Maior patet ex hoc, quia omne determinate verum est necessarium esse vel fuisse: ut patet de qualibet vera

Everything is necessary by the effect of the First Cause which produces it. Everything true is determinately true, and therefore necessary;

11. a'qua̅ novitem B. 13. cat̃u̅ B. 20. cat̃a B. 22. quadratu̅ B; *ib.* cometarꝰ B. 22–23. Nctriu̅ B. 26. n̅ctriu̅ B. 40. v'a B.

logica illius materie; et, si aliquid fuit vel erit, tunc ipsum est, iuxta illam viam. Ergo, si aliquid est determinate verum, necesse est ipsum esse, et per consequens est necessarium. Et minor argumenti patet ex hoc quod omne quod necesse est esse vel fuisse verum, est determinate verum; sed omne verum est huiusmodi. Probatur per deduccionem ad impossibile, capiendo quod *non est necesse esse vel fuisse quod Anticristus erit*, cum hoc quod *ipse erit*. Si Anticristus erit, tunc verum est quod ipse est, et fuit, eo quod verum erit ipsum esse et fuisse. Et omne quod erit est; et si est vel fuit, necesse est ipsum esse, ut proximo deductum est: ergo, si erit, necesse est ipsum esse. Et patet quod si est, necesse est eternaliter fuisse quod ipse erit. Et idem est argumentum de quolibet signando; quia si aliquod ens erit, tunc per tempus futurum est verum et necessarium quod fuit; et per consequens pro eadem mensura est necessarium quod per tempus eternum illud fuit futurum. Et per consequens per illud tempus necessario est futurum.

for every truth must be necessary, if we only suppose it to be indeed true.

This is true for absolutely everything.

Omnia autem necessaria ex supposicione in hoc conveniunt quod necesse est illa pro aliqua mensura esse. Sed hoc tripliciter variatur. Nam aliquod tale necesse est esse eternum *a parte ante* et *a parte post*, ut *deum velle Anticristum esse*, et *Anticristum fore vel esse productum;* quorum utrumque reciproce causat reliquum: primum, ut forma exemplaris, et 2[m] ut materia. Nec est inconveniens, sed necessarium, aliqua reciproce causare in diverso genere causandi. Tales ergo veritates sunt supra omne tempus | ut futuriciones, pretericiones, dis- B 161
iuncciones, et noticie dei. Et tamen contingentissimum est illud esse, cum potest non esse, sed non incipere vel desinere esse. Aliquid eciam tale necesse semper esse: ut mundum et partes eius. Et aliquod necesse est esse non semper; et hoc tripliciter; et sic per omne tempus aut instans in quo instanti desinit esse, vel in omni tempore post instans sui inposicionis; ut patet de istis; *hoc modo* et *hoc instans est preteritum, est futurum*, vel 3° *quod incipiat vel desinat esse* simul ut

Hypothetical necessity implies that the thing must exist at some period or other. But we have three sorts: 1. hypothetical eternal truths, as God's decree that Antichrist should exist, and his production; and these are above all time. Yet their existence is quite contingent. 2. Others exist for ever, 3. others for a longer or shorter period.

7. p[r] *twice* B. 8. q, *twice* B. 9. c̄u h[c] *twice* B. 24. app[v] B; *ib.* app[9] B. 30. ut B. 31. noti[e] B. 39. esse que simul B.

res subite sine successione, ut res temporales que includuntur.

Ex istis patet quod nichil est [in]determinate verum, quia omne contingens vel est determinatum a deo, vel convertitur cum determinato a deo. Nec repugnat necessarium ex supposicione esse contingens, cum contingens sit illud quod pro aliqua mensura non est modo. Non sequitur: *pro ista mensura hoc non est;* igitur, *hoc non est;* quia inpossibile est aliquid quod erit vel fuit simpliciter non esse. Quondam tamen putassem sic dicentem insanire, quia mentes iuvenum infecte, et corporalium fantasmatum mutabilitate plene, non concipiunt prioritatem et coëxistenciam eternitatis cum tempore. Et hoc facit philosophum mundum ponere coeternum deo, et loqui multa impossibilia. Nec sic est loquendum, nisi homo fuerit magis exercitatus in posicione. Error enim huius logice facit multos errare in materia de necessitate futurorum. Putant enim aliqui quod omne futurum est absolute necessarium, forte propter prescienciam, preordinacionem vel determinacionem dei. Sed hoc non sequitur, cum semper potest esse, ut dicitur, quod deus non sic scivit; et tam contingens est mundum non esse vel non fuisse, quam contingens est animam istam non fore, demonstrando quamcunque animam producendam, quia potest deus (sicud quondam potuit) non producere vel produxisse istum mundum. Sed summe libere potuit hoc in eternitate. Ergo adhuc sic hoc potest. Verum non est possibile quod *posse* dei pro aliquo instanti dependat, quia tunc dependeret ab aliquo extrinseco. Et ex hoc patet quod tam necessarium est deum revelasse vel scivisse quodcunque contingens futurum, quam necessarium est me fuisse. Ideo falsum est quod Cristus potuit mentiri vel decipi, sed bene potest non dixisse, vel secundum humanitatem non fuisse. Ideo necessitas ex supposicione non excludit contingenciam ad utrumlibet; et per consequens non tollit libertatem arbitrii nec casum vel fortunam quo ad causam secundam, sed quo ad deum. Et sic errando putamus ex magna ignorancia quod futura sunt indeterminata.

There is no such thing as indeterminate truth. Hypothetical necessity is by no means contrary to contingency. We cannot say *This is not* of a thing that was or that is to be. I once thought that this opinion was madness, for I did not understand it. One must, however, be well trained before using this language; for many err, thinking that all future things are absolutely necessary. But it does not follow.

Christ could not lie, but He might not have spoken, or not have existed. The free will of man is thus saved; chance also exists for the second causes, not for God; but we, being ignorant, think that the future is undetermined.

3. determinate B. 14. phūs B. 37. cām B. 38. cām B.

There are many things foreknown and fore-ordained, and many that are only foreknown, and there may be things that God does not foreknow; but whatever He foreknows, must exist hypothetically at some part or other of eternal time; and as it is impossible that anything should be eternally in the future, this thing foreknown will at a certain time become past.

Conceditur tamen quod multa deus prescit que non preordinat, ut peccata; et multa prescit que preordinat et predeterminat. Et tamen iam vel nunc potest esse quod nec nunc prescit, nec aliquando hoc prescivit, cum a dei sciencia sequitur illud scitum; quia ista sciencia dicit relacionem dei ad coexistenciam sciti. Verumtamen quidquid deus prescit, necessarium est illud esse pro aliquo tempore, et per consequens in tempore eterno est illud necessarium ex supposicione. Nam | si deus prescit aliquid, ipsum erit. Et cum clau- B 162a
dit contradiccionem aliquid eternaliter esse futurum, distingwendo futurum contra presens, patet quod pro aliqua parte temporis eterni est illud lapsum in preteritum, et per consequens pro illa parte temporis eterni necesse est illud fuisse. Et cum necessario omne quod fuit est in tempore eterno, patet quod necesse est illud esse.

This is why the Fathers say that God necessarily foreknows that which is foreknown, all things being present to Him; they do not speak of absolute necessity. *My existence is necessary*, means that it is hypothetically so; or that it necessarily follows from the existence of an eternal truth; or that, I being, it is against the ordinate power of God that I should not be.

Et isto modo intelligendi sunt patres nostri, qui dixerunt quod si deus quidquam prescit, necessarium est ipsum sic prescire, et illud esse, quia deo sunt omnia presencia. Sed constat quod illud dictum cum eius sentencia est valde remotum a sentencia que concedit quod absolute necessarium est deum prescivisse hoc futurum. Et si queritur quomodo debet exponi hec proposicio, *necessarium est me esse*, dicitur quod altero istorum modorum probari potest: *necessarium ex supposicione est me esse, ergo necessarium est me esse.* Et antecedens sequitur: *hec est una veritas eterna ex qua sequitur me esse; ergo antecedens respectu talis.* Vel potest sic exponi: *ego sum, et legi vel in potencia dei ordinate repugnat me non esse; ergo necessarium ex supposicione est me esse.* Nec sequitur: *Ego sum et hoc instans est: ergo, ego sum in illo*, quia tunc quodlibet semper esset. Nec sequitur: *aliquando non sum: ergo, non sum.* Nec sequitur, *Sum in instanti presenti; ergo, sum nunc*, cum *nunc* sit adverbium singulare. Nec sequitur: *deus nescit hoc in B instanti quod est presens: igitur, nescit hoc*, cum necessario scit omnia presencia, preterita, et futura cum singulari sciencia absoluta.

5. 1a cū *pro* cum B; *ib.* ſcia͂m B. 10. Nam | nam B. 11. fuisse esse B.
13. *after* eterni; est illud lapsum in preteritum *underlined* B. 31. r'pu͂gna͂t B.

Et si queratur quando necesse est talem futuricionem esse, dicitur quod quandocunque aliquod est, necesse est illud esse, ut dicit Aristoteles. Et ita, si ens est, deus scit necessario illud esse, ut in hoc instanti erit; in quocunque eciam in quo est ipsum instans, necesse est illud esse. Et sic in hoc privilegiatur *scire* dei respectu sciti extrinseci ultra *scire* nostrum; quia sciencia sua est inmutabilis. Nam claudit contradiccionem ipsum esse, nisi sciat illud esse. Ideo non expectat alteracionem sui, ut quidquam adiscat. Nec dicit *scire* suum habitum in ipso, sed relacionem, scilicet coexistenciam scientis ad scitum. Ideo est alterius racionis quam *scire* nostrum. Et hinc est quod homo potest privari a presciencia, quia de potencia absoluta potest fieri non prescitus, postquam fuerit prescitus, sine variacione pari sciti. Sed non sic deus; quia si prescit quidquam, illa presciencia est eterna, cum non potuit incipere prescire. Nec videtur quod potest desinere prescire. Ideo non potest de non prescito fieri prescitus, sicut nec de sciente veritatem aliquam, fieri eius non sciens. Possibile tamen est quod deus sit cuiuscunque veritatis corruptibilis non scius Vel nescius erit; veritatem quam semper scit esse non scit esse semper, cum scit eam aliquando non esse. Et per illa considerata patet responsio ad 2^m^, quia non sequitur.

When must this future being exist? when it does exist, and that instant is known to God, by unchangeable knowledge, far superior to ours.

His knowledge signifies merely the coëxistence of the knower and the known. A man may foreknow and then cease to foreknow a thing without any change in the object; not so God. His foreknowledge is eternal, and therefore a 'foreknown' cannot become not 'foreknown' Yet God can know a changeable truth not to exist at a given time.

Ad 3^m^ dicitur quod non sequitur *Mors mea est in tempore quo vita mea est; et sic quando vel dum vita mea est; ergo, est simul temporaliter cum vita mea;* quia, sicud dictum est quod ad hoc quod aliqua sint simul tempore, requiritur quod sint pro eodem instanti vel inmediata; sed ad hoc quod aliqua sint simul in loco, requiritur quod ipsa vel aliqua eorum sint in
B 162^b^ eodem situ indivisibili, vel inmediata. | Unde, quamvis eius partes temporis sunt, non tamen sic simul sunt. Nec est possibile alicuius successivi eius partes simul esse; ut tempus a principio mundi usque nunc habet partem currentem a principio mundi usque ad nativitatem Cristi; et inter terminos illius partis et ipsum nunc sunt mille trecenti et 83 anni. Unde, sicud ponendo universalia, de levi pronuncciantur veritates quas particulares homines reprimerent intricate, sic indubie

3. That my life and death must take place in the same eternal time does not prove that they are simultaneous; for we have already stated that this requires coëxistence at the same instant, as it is requisite, that two things should coëxist, or touch each other, to be together in space.

14. d̄ep ata B. 15. p^ri^ B. 21. scit B. 39. mille t'centi ⁊ 83 B. 41. r̄pm'it B.

The doctrine of universals helps much towards a clear comprehension of all these things.

in illa materia de levi et plane pronuncciantur veritates continentes successionem ab illis quorum animus elevatur ad considerandum eternitatem supra tempus, ubi aliquando solum ymaginantes sensibilia intricantur. Ymmo, ut communiter loquendo de successivis, pronuncciant nescii multas veritates ex quibus sequitur opinio supra dicta.

A permanent being is a being that continues to exist during a certain space of time; a successive being changes with time; an instantaneous being is measured by the first instant of its existence. Time has all its parts, but it has them all one after another.

Patet ergo quod, si aliquod temporaneum vel durans per tempus sit temporale, quod non oportet deficere pro omne mensura temporali qua est, tunc ipsum est permanens. Et si sit aliquod per tempus, oportet partes succedere pro omni mensura temporali qua est illud successivum. Sed inter ista mediat subitum, cuius *esse* mensuratur instanti primo. Et si obicitur quod *omnes partes temporis sunt, igitur in presenti instanti sunt;* patet quod omnes concedentes sic tempus esse, concedunt antecedens. Et patet michi quod consequencia non valet pocius quam sequitur in suo convertibili: *una pars temporis fuit et alia pars temporis in eodem magno tempore eterno erit: ergo iste partes sunt in eodem instanti.* Nec dubito quod repugnat aliquid esse in tempore eterno, vel esse prioritatem et posterioritatem temporis, nisi incedendo in viam veritatis predicamentalis.

It is not true that we have nothing of time but one instant, for how can we have an instant without having time? Unless indeed this means that we have nothing of time that is *now*, but one instant.

Et si obicitur communis sentencia quod nichil habemus de tempore nisi instans, patet quod illud vere non potest intelligi ad verba, cum claudit contradiccionem nos habere instans de tempore, nisi habeamus tempus et quotlibet partes eius. Ideo sic sane intelligitur: nichil habemus de tempore quod sit primo in ipso *nunc*, nisi instans; quod est verum, quia compositum ex duobus vel 3$^{bus}$ aut quotlibet signatis instantibus non est primo in ipso *nunc*, cum quotlibet eius instancia sunt extra ipsum *nunc*. Ideo, ponendo tempus componi ex instantibus, patet quod non est racio quare duo instancia componencia tempus sunt, quin per idem omnia instancia preterita et futura sunt; et deus est in quolibet istorum ita certus de quocunque vero sicud est de aliquo: quod non esset, nisi ita certe esset quodlibet verum, sicud est aliquod, et per consequens ita determinate, sed non ita stabiliter.

If two instants unite to make up time, why not all instants of the Past and the Future? At all these instants, God is certain of every truth; which implies that all of them are equally determinate and true.

9. it͡ *perhaps crossed off pro* sit B. 21. quia *pro* quod B. 23. pre͡dic͡tas B. 31. fit$^{e}$ B. 35. f$^{d}$ qu' B.

Conceditur igitur quod omnes veritates que unquam sunt vel erunt, sunt; sed non nunc. Et sic omnes oppositiones relative, contrarie et privative, sunt; sed non nunc; ymmo in tempore eterno. Nec esset possibile aliter esse relatam oppositionem inter *prius* tempore et suum *posterius;* nec inter duo contraria, cum albedo in me et nigredo in Sorte non contrariantur. Nec inter privacionem et suum habitum, cum non possunt simul esse; nec inter condradictoria, cum non possunt simul esse. Est ergo opposicio inter illa opposita in magno tempore eterno, de quo intelligitur quod si unum oppositorum est, tunc reliquum est. Et libet vere loqui quod omne instans est aliquod *istorum*, demonstrando omnia instancia; et aliquod istorum est nunc, et aliud B 163[a] non est nunc, | demonstrando omnia que sunt in magno tempore eterno. Non enim valet responsio que concedit quod prioritas temporalis inter A instans et B instans est, et tamen sua extrema non sunt, quia sic prioritas est sine posterioritate, sicud nec posterioritas cum prioritate. Tunc autem fundaretur relacio, et dependeret tantum ab uno extremo. Sic enim loquitur communitas logicorum, concedens istam horam pro eius medio instanti habere duas medietates ex quibus componitur, ut ex partibus componentibus et concausantibus ac continuatis ad hoc instans; et tamen ille medietates non sunt, cum hoc instans sit extrinsecum utrique earum. Certum est quod talia sunt impossibilia. Ideo relinquitur quod omnes partes temporis eterni sunt, et per consequens omnia que iste partes mensurant.

Et si obicitur sic: *qualitercunque erit, est; sed necessarium erit Anticristum fuisse, ergo necessarium est Anticristum fuisse,* et sic de omni veritate: dicitur concedendo conclusionem, sicud patet in descripcione Necessarii. Sed non sequitur, *Necessarium est Anticristum fuisse; ergo, non potest esse quin fuit.* Hoc enim solum sequitur et de absolute necessario. Et ita, si ens aliquod fuit vel erit, tunc ipsum est; et econtra. Nec sequitur: *mors mea est: ergo, ego non sum;* et sic de aliis denominacionibus, que videntur inferre negacionem.

Ex quo videtur quod de nullo quod fuit vel erit concedendum est similiter quod illud non est, sed *illud*

All truths are, but not all are now; all relations, oppositions, and contradictions are, but not all are now; this besides is self-evident, by the very idea of opposition.

We cannot admit that the instant A is before B, if either A or B is non-existent; for that would imply priority without posteriority, and vice versa. Every relation must depend upon two extremes, not one only. This, however, is the common doctrine of logicians, which is certainly impossible.

*Objection:* It will be necessary for Antichrist to have come; therefore it *is* necessary for him to have come; since what will be, is.

Here the solution rests on the sense already mentioned, of hypothetical necessity.

We must never admit that anything past or future does

26. instanti (!) B. 33. d,d,$^{one}$ B. 36. et = erit? B.

not exist absolutely, but that it does not exist in a certain part of time.

*non est tunc vel tunc vel modo.* Sicud non sequitur: *A non est ibi; ergo, ipsum non est;* sic ista non sequitur: *A non est tunc: igitur, ipsum non est.* Si ergo *non esse* rei est, tunc illa res non fuit vel erit. Unde talis proposicio eternaliter foret falsa: *hoc non est* (demonstrando rem que fuit vel erit). Nec quidquam tale scitur non esse. Bene tamen scitur aliquid non esse nunc, vel tunc. Nunquam ergo fuit ita quod *ego non sum.* Opposicio igitur contradictoria non potest esse ex parte rei, cum claudit contradiccionem unam veritatem contradictam succedere alteri, eo quod contradiccio tunc esset in re: omne quod fuit vel erit, est. Ideo oportet cavere de negativis sine determinacione.

That *I am not,* was never a true proposition.

Another objection: God knows me to exist and not to exist, so He knows a contradiction; so a contradiction exists. We reply that He knows a contradiction, but not the existence of a contradiction *now.* I too know many things that are not, to have been or to be about to be at their time.

Et si obiciatur quod deus scit quidquam scivit, et per consequens scit me fuisse et me non fuisse, et ita scit contradiccionem, et cum non scit nisi quod est, sequitur quod contradiccio est: huic dicitur quod consequencia non valet, sed antecedens concedendum est; quia omne quod deus scivit, fuit, et per consequens est, et ultra sequitur quod deus scit illud, sed non scit illud esse nunc, quamvis nunc scit illud esse. Sicud enim tendit omne quod fuit vel erit esse in tempore suo, sic scit omne tale esse, et aliquando per consequens scit illud esse. Ymmo sic scio ego diem iudicii esse. Et multa olim horum corrupta scio nunc esse in tempore suo, sed nichil scit illa esse nunc. Deus autem nunquam scivit me non esse, quamvis omnem creaturam pro aliqua mensura scivit non esse.

It is urged that God's knowledge of past, future and present is absolutely identical; now identity in knowledge argues identity in the known.

Sed si argumentatur ex hoc quod eadem sciencia scit deus fore rem qua scit rem fuisse vel esse, quia idem est sciens invariatum, et idem est scitum: ergo, eadem est sciencia (Consequencia patet de homine, et per consequens evidencius de deo. Et minor patet ex hoc quod omne *fuisse* vel *fore* rei est eius *esse,* cum claudit contradiccionem *fuisse* vel *fore* rei existere, nisi eius *esse* sit ut conceditur): hic videtur michi | quod B 163b *fuisse* vel *fore* rei, cum sit sempiternum, et res illa temporalis, valde differt ab *esse* rei. Negatur: "hoc infert *esse* rei"; ergo "est illud esse"; quia tunc omnis

But though the past and the future infer the existence of the thing, they *are* not that existence.

1. tt ul tt B. 2. ita B. 7. scit' B. 11. e°; *ib.* 9dicto B. 12. essent B. 14. fcuit B. 22. t°dt B. 26. scit B. 36. cuius? B; *ib.* eeſit ut 9r B. 38. Ner B.

causa esset suum causatum. Sed de sciencia dei tripliciter contingit loqui; vel formaliter, ut dicit relacionem in deo, et sic est accidens sibi prius naturaliter, sed ponens scita; vel ut dicit habitum vel actum elicitum; et sic non est sciencia essencie divine; vel 3°, ut dicit substanciam scientem, et sic manet necessario eadem sciencia dei, non pocius variata propter variacionem rei, quam variatur lux propter hoc quod illuminat manum et post aliud succedens in eodem situ post manus absenciam. Et ita dicitur a sapientibus quod eadem est fides secundum substanciam credencium rei futuricionem, que est credencium eius presenciam vel pretericionem, quia substancia fidei est de cuius futuricio precedit, et *esse* subsequitur, et pretericio postrema. Sicud eadem est substancia noti et visionis qua cognoscuntur membra maligna et antiqua ex tempore alterata, et membra parva et tenella tempore precedencia. Accipiendo ergo fidem pro isto credito omnis credens futuricionem rei vel eius pretericionem, credit *esse* rei in tempore eterno, quamvis non nunc.

God's knowledge can be considered *formally*, expressing a relation in God, which posits the thing known, or as an act, or as implying the cognitive subject, and in this last sense the knowledge is no more varied by the variation of the object than light is by the removing of that which it shines upon. Faith is the belief in the existence of something, either in the past, or in the future.

Et ulterius obicitur quod sicud ex dictis sequitur de hoc, *erit vel fuit tunc est:* sic econtra, *si est, tunc erit et fuit;* et per consequens *hoc instans est, erit, et fuit;* quod nimis est confusivum dicere, cum tunc non esset differencia inter tempore verborum. Et consequencia patet ex hoc quod, si aliquod instans est, tunc deus in tempore futuro scit illud fuisse, et in eternitate scit illud fore. Et sequitur: *deus scit hoc fuisse,* igitur, *hoc erit,* nam proposicio vera significat *hoc fuisse, et ita est; ergo quod hoc fuit.*

It may be said that if what is future is, what is, is future and past; this would cause great confusion and mix up all the tenses; God existing in the future, knows the present as past, and the future too.

Hic dico quod videtur michi conclusionem esse concedendam de quolibet quod est in parte temporis; sed non sequitur formaliter de alio, cum *esse* sit prius naturaliter quam *fore* vel *fuisse.* Et ita conceditur omne tempus presens esse preteritum et futurum, sed non respectu eiusdem instantis. Unde in eternitate, *esse* non est formaliter *fore* vel *fuisse;* sed totum est ibi *esse* et presencia erit. Hinc negant quidam quod deus prescit vel scivit aliquid, et hinc 2$^{m}$ grammaticos forte ista obliqua verba sunt, et tunc non realiter formantur ab hoc verbo *sum,* sed a talibus verbis *fuo, fuis, ero,*

I do not object to this conclusion so far as it regards those things that take up a part of time, but the present is not past and future relatively to the same instant: In eternity all is present, there is no future, no past. Some deny God's prescience seeing all things

8. q̃ꝫ B. 16. mag͡na B; *ib.* xtp̲te B.

as present; and in fact grammarians point out that past and future come from other verbs than *esse*.

*eris,* que sunt adiectiva connotancia pretericionem et futuricionem in tempore, valde dispariter a verbo substantivo; ideo argumentatur ab inferiore ad suum superius, dum sic argumentatur: *Ego fui vel ero; ergo, ego sum.*

The authors say that all truth is in eternity, as the object of Divine knowledge, but things contingent exist otherwise in time; which may mean that the eternal archetypes of things are in God, and that creatures are produced in time according to them.

Unde nota quod auctores ponunt omne verum in eternitate, cum sciencia dei terminata ad ipsum. Et, ut sic, est omne verum eternum, est necessarium et inevitabile. Sed aliud *esse* habent contingencia in tempore. Illud autem potest habere sanum sensum, videlicet quod in eternitate sunt raciones ydeales, que ponunt tales res esse in tempore suo; et secundum pretericionem causalem, concedunt auctores illas vias racionaliter esse res productas. Videtur tamen michi quod nichil est formaliter in eternitate, nisi quod est quodammodo eternum, et ita futuricio et sciencia dei est in eternitate, et presencia sic est in tempore; et non sic sed aliter in eternitate.

It is objected that white is black, and every contrary every other. A two-fold answer. 1. The conclusion is of no more value than the argument. When a predicate is affirmed of a subject, it is understood to be affirmed as existing simultaneously; not so when there are several affirmations. *This man is dead; this man is alive*; to get a conclusion, you must suppose both affirmations true at the same instant.

Et ulterius videtur sequi quod album est nigrum, vivum mortuum, et sic de quotlibet oppositis, quia sequitur: *hoc est vivum | et hoc est mortuum: igitur vivum est mortuum.* B 164a Et per idem album est non album; et sic de quibuscunque oppositis. Hic dicitur dupliciter. Primo, non sequitur conclusio nec valet argumentum factum pro eius probacione. Unde, quandocunque in una kathegorica affirmatur predicatum de subiecto, hoc semper est intelligendum pro eadem mensura duracionis; sed quandoque seorsum in diversis affirmacionibus sic asseritur, hoc potest esse pro diversis mensuris. Ideo oportet capere in minori quod *hoc sit mortuum* pro eadem mensura pro qua *hoc est vivum.* Et tunc sequitur conclusio. Et per hoc tolluntur quotlibet deducciones in quibus concluditur oppositum de opposito. Et per idem notandum est quod aliud sit *hoc esse album et nigrum* de copulato extremo, quamvis aliquid sit *hoc esse album,* et illud idem sit *hoc esse nigrum.* Ex istis patet quod repugnat scire *hoc esse non album* aut *non senem,* etsi hoc vel fuit erit senex vel album. Ex quo patet quod opposicio contraria vel privativa non infert oppositum contradictorium, nisi

9. hꝫ gtiª B. 12. ptiçom B. 13. roñet' ẽ B. 23—24. dr d'r B. 34. scit B. 36. scit B; *ib.* scit B. 40. in fit (sic) B.

cum limitacione ad eandem mensuram, ut sic argumentando: *hoc est album, et nullum album est nigrum: et igitur, hoc non est nigrum pro eadem mensura pro qua est album;* et ita de similibus est dicendum.

A thing may be white and black, but the contradiction consists in its being so at the same time.

Ex istis patet quod non repugnat aliquid moveri ad denominacionem quam ipsum [non] habet et a denominacione quam [habet,] sed non pro eadem mensura temporis pro qua ipsum movetur ad illam vel ab illa; ut moveor ad sanitatem, et sum sanus illa sanitate, sed non pro eadem mensura temporis pro qua moveor ad illam, sed posteriori. Ideo ista posicio non destruit, sed ponit omnem motum cum suis terminis a quibus et ad quos. Nec esset aliter possibile motum specificari vel esse cum talibus terminis; semper tamen modificandi sunt termini infiniti, ut: *non esse illius albi est vel fuit tunc vel tunc.*

This theory does not contradict the idea of change; on the contrary, it affirms change with all its elements.

Sed 2° probabiliter conceduntur omnes tales predicaciones oppositorum positivorum pro diversis mensuris, sed non contradictorum; ut quod *ceci vident, claudi ambulant, mortui resurgunt,* etc. quia qui sunt huiusmodi pro preterito sunt huiusmodi pro tempore futuro; et hoc potest esse ad alium sensum sine miraculo, et ita invenitur sequela scripturam loqui. Et ita sum triennis et senior quam triennis, et iunior quam triennis, sed non quam est alius qui est triennis. Sum enim senior quam triennis, quia pro hoc instanti. Et assumitur sic: hoc instans intrinsecum terminat senium meum, quod est maius quam aliquod senium trienne. Et ita resolvenda sunt omnia talia in *per se.*

2. On the other hand, we may admit the argument and grant that these oppositions coexist, but in different parts of time, so that they do not really contradict each other. I am three years old, and older than three, and younger than three; but not younger than one who is just three years old.

Sed ulterius argumentatur quod necessarium antecedit ad contingens ad utrumlibet; et per idem, ex contingenti sequitur impossibile. Sequitur enim ad *deum scire Anticristum fore, ipsum Anticristum esse;* sed antecedens est necessarium, cum sit veritas eterna que non potest incipere vel corrumpi. Et per consequens, vel est falsum vel contingens ad utrumlibet de presenti. Et per idem sequitur: *Deus scit me non fuisse; ergo, ego non fui;* sed antecedens est necessarium pro tempore preterito precedente *esse* meum, cum sequitur: *deus scivit assumptum esse verum, me non fuisse: ergo, deus*

*Another objection:* A thing absolutely contingent follows from a necessary truth: which is absurd. For instance, God's knowledge that Antichrist will exist, and Antichrist's existence. Or, *God knows that I did not exist;*

4. e't B. 6. non *deest* B. 7. habet *deest* B. 27. as$^{r}$ B; *ib.* seni$^{m}$ B. 29. in p̄ se B. 40. a$^{nu}$ B; meum *pro* verum B.

therefore *I did not exist:* which is false.

*scit me non fuisse;* et antecedens constat esse necessarium. Et quod consequens sit impossibile, patet ex hoc, quia suum oppositum est determinate verum de preterito, et omne tale est necessarium, et quod consequens sit impossibile.

Most of the philosophers whom I follow admit the conclusion verbally.

But the antecedent cannot be true at the moment when the consequence is good. *God knows that Antichrist will be;* therefore *Antichrist is,* is true, but the consequence exists only at a certain time, and not when Antichrist's futurition is without his present existence. A consequence may also be true, and yet not true in any finite time; as: *God wills that all the instants of time be;* therefore *they are;* which cannot at any moment be true. Thus it is not necessary that the thing affirmed in the consequent should exist actually, for the conclusion to be true. It does not follow, if I know the resurrection, that the resurrection is now.

Hic dico quod precipui philosophi quos ego sequor in ista materia concesserunt conclusionem in terminis. Nec aliter videtur, capta tota multitudine veritatum continuancium, quomodo ipsa possent causari ab alia completa causa priori. Verumtamen hoc est impossibile quod pro eadem mensura qua consequencia est bona, et antecedens est verum, | et consequens non. B 164[b] Nam data tali consequencia: *Deus scit Anticristum fore: ergo, Anticristus est,* realis consequencia non est nisi in tempore: ergo, est consequens cum antecedente. Et ita in omni tali consequencia, consequens est ita verum sicud suum antecedens. Et ita illud consequens est necessarium et contingens, sicud antecedens est contingens et necessarium. Nec est consequencia pro instanti quo Anticristum *fore* est sine eius *esse;* quia consequencia est habitudo relativa causati ad causatum eiusdem. Unde aliqua est talis consequencia, quam simpliciter est esse impossibile in tempore finito; ut patet de tali consequencia: *Deus wult ista esse: ergo, ista sunt,* demonstrando omnia instancia temporis eterni cuius antecedens et consequens claudit contradiccionem pro aliquo instanti esse vera. Ista ergo consequencia, cum suis extremis, est primo in tempore eterno, et respectu cuiuscunque temporis est dare talem consequenciam et quotlibet alias veritates. Nec est inconveniens veritatem conneccionem manere, et quantumlibet tempus, et posicionem antecedentis manere continue veram posicionem consequentis, manente contingencia vera sine existencia sui significati; ut hic: *dies iudicii est futura: ergo, illa dies est.*

Nota tamen quod non oportet, etsi signum sit verum pro aliquo instanti, quod suum significatum sit pro illa instanti. Sed satis est quod sit pro alia mensura, sicud non sequitur: *hic scio hoc: igitur, hic est hoc.* Ista non sequitur: *scio nunc resurreccionem mortuorum: ergo, nunc est resurreccio mortuorum.* Unde

2. q, 9s B. 9. 9tia^cfu B. 34. 9ti^a B. 40. ista B.

patet quod, formato tali signo eterno: *deus scit omnia instancia fore: ergo, illa sunt*, quod tam antecedens quam consequens foret eternaliter verum. Non tamen bene est distinguere inter veritatem connexionis, que est condicionalis veritas, non ponens antecedens vel consequens ex parte rei, et consequenciam ex parte rei. Stat enim conclusionem veritatis ad suum antecedens esse pro una mensura, pro qua suum antecedens non est, et econtra, cum temporale sequitur ex eterno, et econtra. Nec est verum quod deus unquam scivit vel scit me non fuisse, sicud nunquam fuit ita quod ego non fui; sed semper est ita quod ego non fui in isto vel in isto instanti. Unde non sequitur: *Hoc in quolibet instanti non est; igitur, hoc non est*, demonstrando multitudinem omnium instancium, vel quodcunque aliud quod non potest esse in instanti. Nec sequitur: *in hoc instanti est ita quod hoc est vel non est: sed nunc non est ita quod hoc est: ergo, nunc est ita quod hoc non est;* sicud eternaliter ante primum instans mundi fuit ita quod *hoc est vel quod hoc non est.* Et tamen nec fuit ita ante hoc idem instans quod *hoc est*, nec ante illud fuit ita quod *hoc non est:* sicud in multis locis neutrum contradictorium est, sic in multis temporibus, ut in quotlibet locis, *nec est ita quod tu es nec est ita quod tu non es.* Et ita in multis instantibus; quia aliter quidlibet repleret orbem terrarum, sicud deus. Et conformiter non sequitur: *ante primum instans mundi fuit hoc esse vel hoc non esse; sed tunc non fuit hoc esse, ergo tunc fuit hoc non esse;* quia si tunc fuit hoc non esse, et omne quod fuit est, sequitur quod est hoc non esse; potissime cum illa repugnant: *hoc fore* et *hoc non esse;* et *hoc fore* fuit eternum ex omnibus cum talibus dictis. Unde sequitur cum determinacione quod *vel est hoc esse nunc, vel est hoc non esse modo.*

And God's knowledge, and the consequent existence, of all the instants of time, is true in eternity.

The conclusion may be true at a time when the antecedent is not true, and *vice versa.*

God never knew that I did not exist, but that I did not exist at such or such a time. Other examples.

Sed ulterius dubitatur si antecedens eternum eternaliter causat suum consequens, ita quod, *si deus nunc wult A esse, nunc causat A.* Quo dato, videtur quidlibet esse eternum, cum omnis rei causa sit eterna, et causa completa simul est et non est cum suo causato; quia aliter consequencia bene alias posset esse sine dato consequente, et tunc videtur quod deus eternaliter

Whether an eternal antecedent causes its consequent eternally. If so, everything would be eternal, since God is the cause of all, and His will is eternal.

40. 9ne B.

gignit omnem creaturam, cum pro quolibet instanti causat, faciendo omne scibile. Nec videtur racio quare pro hoc instanti deus scit hoc esse quod per mille annos post hoc instans non est, quin per idem ordinat et scit hoc esse, cum sua ordinacio sit sua faccio. Hic dico quod | precipui philosophi concedunt B 165[a] omnia esse eterna in noticia et sciencia dei, quod non aliter intelligendo adhuc addit, nisi quod illa fuerint eternaliter ordinata vel scita. Modo non sequitur: *hoc est volitum a deo scitum, vel ordinatum pro ista mensura: ergo, hoc est pro ista mensura.* Sed bene sequitur ex dato antecedente quod *hoc est in tempore suo*, ita quod ista sunt ampliata, sicud termini actuum illis correspondentes. Nec sequitur: *deus vult hoc, amat hoc, ordinat hoc, pro ista mensura* (quia *intelligere* dei respectu cuiuscunque singularis extra est prius quam suum *velle*, cum *intelligere* sit absolute necessarium): *ergo causat hoc, facit hoc, vel scit hoc pro ista mensura.* Sed *velle, diligere, ordinare*, et *cognoscere* etc., que sunt intrinseca deo, precedunt suum *facere* ad extra. Ideo dixerunt subtiles philosophi quod est dare actum executivum voluntatis divine, distinctum ab illa volicione, sicud temporale posterius in natura distingwitur a suo priori eterno.

All things are eternal in God's knowledge; but it does not follow that they exist in the same way as they are known, i. e. eternally, only that they exist at the right time.

So also of God's will, love, and ordering act.

These acts precede those of making, which are extrinsic to God. Some philosophers even posit a two-fold act of His will.

Ideo oportet notare que verba ponunt pro eadem mensura rem ad extra, et que non; ut *operare* dei, *efficere* [quod] suum est, *formare, movere* et huiusmodi sunt temporalia. Sed *scire* vel *cognoscere, amare* vel *ordinare* etc. sunt eterna; et illa possunt esse et sunt sine temporalibus, que formaliter secuntur ex illis; non tamen possunt esse cum hoc quod reliqua non sint. Unde satis est quod A sit pro aliqua mensura pro qua non habet B, ad hoc quod sit sine B. Unde beatus Petrus est sine peccato pro mensura sui certitudinis, et tamen est in peccato pro mensura sue nega-cionis, et ita nunc scio B Petrum esse in peccato, sed non pro nunc; et ita credo quod scio me esse beatum in tempore suo; ymmo credo quod nunc scio me esse beatum tunc.

Note which verbs denote the external operation of God, and which the internal act. The latter may be and are without their temporal results, which, however, they must produce; for *to be without* signifies *not to have* for a certain period, not for ever.

Sed ulterius dubitatur si causans causat suum cau-satum antequam causatum sit ipsum. Et videtur michi

Whether a cause produces its effect *before* that effect exists.

13. terminum B. 18. ſt' *pro* scit B. 27. quod *deest*. 31. r'linq$^{\text{nt}}$ B. 34—35. ot'itu$^{\text{nis}}$ B.

quod omne causans prius origine natura vel tempore causat suum causatum, antequam ipsum sit, sed in supposito causantis. Si causans pro aliquo instanti causat, vel est causa eorum, tunc illa sunt pro eodem instanti. Unde quamvis deus sit causa Anticristi, non tamen pro hoc instanti; et sic concedi posset quod in hoc instanti est illud quod causat in alio instanti; et sic est causa in alio instanti, quamvis non in hoc instanti causat in alio instanti. Et ita conceditur, ut prius, quod consequencia ex parte rei non est nisi pro mensura in qua est illud consequens. Et ita antecedens est pro mensura pro qua non est antecedens respectu dati consequentis, quia non est antecedens, nisi quando est antecedencia. Et sic patet quod tempus est in instanti, non ut in eius adequata mensura, sed est in se primo, cum per se sit diuturnum et in instanti, ut in casu; et in eodem instanti est unum instans aliud a reliquo. Nec sequitur quod in eodem instanti reliquum sit, nec quod pro illo instanti sit unum aliud a reliquo, quia tunc in illo instanti esset illa alietas.

It does; neither in time, nor in nature, or by origin; but cause, *qua* cause, and effect are simultaneous. God is Antichrist's cause, but not now; and we may say that what causes at one instant exists at another. So a consequence exists only when the consequent exists, and the antecedent exists before it is properly an antecedent.

Ex quo patet quod infinita sunt, quorum nullum potest esse per tempus vel instans. Illud patet de veritatibus talibus eternis, primum instans erit, generacio mundi erit, etc. Patet eciam de talibus: *Ista omnia sunt,* quibuscunque demonstratis; patet eciam de talibus: *Iste motus est difformis, quo ad tempus alio gradu usque ad B;* et ita de difformitate motus, cuius prima medietas est uniformis ut 4, et alia medietas succedens uniformis ut 8, et generaliter de omni motu remisso qui non est vere continuus generaliter; et per consequens de omni sono vel oracione. Nam manifestum est philo-
B 165b sophis quod oracio est | quantitas discreta, successiva, in qua sunt quotlibet intercisiones, eo quod tremor est motus causatus ex refleccione, qui non potest esse motus continuus, ex 6° phisicorum. Ideo generaliter decipitur sensus de continuitate soni, sicut visus de continuitate situacionis [et] coloris: ut patet de ticione circumducta in nocte, et troco cuius basis est discolor circumducto in limine, ut declarat Boecius in principiis musice.

There are infinite things that are neither temporal nor instantaneous, as, v. g. eternal truths, collective propositions, propositions about varied motion, sound, and speech; which last is an intermittent and varied movement, in which our ears are deluded, as our eyes are in other cases.

2—3. fuppo͡ B. 6. p̄ concedi po; B. 16. $c\overset{2}{a}$ = causa? B.
31—32. phis = physicis (?) B. 37. et *deest* B; *ib.* ticone B. 39. line B.

Here I wonder how modern writers can pay so little heed to their own expressions on these subjects, which imply that many things exist which are not present. If not, movement could have no beginning nor end; design in nature, merit and demerit, would perish; theft and hanging, work and health, father and son, privation and production, would no more be causes and effects. And nothing could happen in which there was a *before* and an *afterwards*.

Et hic admiror quomodo moderni non advertunt ad locuciones suas de prioritate et posterioritate temporis, de difformitate motus quo ad tempus (et sic de aliis), de comparacionibus includentibus multa esse extra presens. Aliter enim non esset possibile motum successivum vel subitum terminari, vel habere terminum a quo vel terminum ad quem, vel naturam agere propter finem accionis sue, nec meritum vel demeritum esse causam pene vel premii; nec furtum potest esse causa suspensionis, nec labor causa sanitatis, nec pater causa filii, nec privacio principium producendi, nec mors vel fons vite aliis potest esse; nec aliquis potest ambulare vel dicere argumentum, nec aliquid potest esse ante tempus vel post aliud instans; et sic omnia incipiunt et desunt esse, cum non erit tempus amplius. Si enim A erit post hoc, tunc possibile est A esse post hoc, et tunc possibile est anterioritatem vel posterioritatem esse, et sic prioritatem et posterioritatem. Sequitur enim: *ego sum ante B, ergo sum prius temporaliter quam B.* Et ita de *post*, quia aliter non esset possibile quod unum succedat vel precedat temporaliter aliud, cum pro mensura pro qua sunt simul, neutrum est temporaliter post vel ante reliquum. Non enim concedendum est quod deus facit aliqua duo incipere esse; et si cognosceret unum posse differre a reliquo, vel alterum illorum ordinate posse fieri, ipse non sic faceret. Benedictus sit ergo dominus temporis, qui illuminat mentem meam supra tempus ad evadendum libere omnes istas angustias spiritus in loquendo.

Blessed be the Lord, who hath enlightened my mind, so that I escape these straits!

Nec movet difficultas de assercione dei respectu futurorum, quod utrolibet est sibi causata certitudo, et ita simul in unum contingencia et necessitas. Ego enim liberrime possum non fecisse quemcunque actum, ymmo non esse pro nunc, cum omne unum quod non est absolute necessarium est contingens ad utrumlibet et necessarium ex supposicione. Si ergo esset absolute necessarium omnia futura evenire, vel necessitate coaccionis, vel 3° necessitate naturali excludente libertatem, periret meritum. Modo est necessarium meritum, consiliacionem, casum et fortunam esse: ymo potenciam

That God is certain as to future things makes no difficulty; for there is both contingency and necessity. I am quite free not to act thus or thus, but this does not exclude hypothetical, only absolute, violent, or natural necessity.

9. n̄o pt' B. 13. am̄ *pro* argumentum B. 20. B *deest* B.
30. aff,cone B. 31. cāta B.

a domino esse cuiuslibet creature; et hoc est de lege que potest esse ordinata: *talia possunt contingere;* legi tamen ordinate, que est eterna et incorruptibilis, repugnat talia non esse. Et si queratur quid sit necessitas ad peccandum, potest dici quod non deus, sed libertas arbitrii. Verumtamen, sicud est temporale bene placitum deo, est reducibile ad eius voluntatem eternam, cuius non est dare causam formaliter inferentem; sic omne preteritum est reducibile ad voluntatem causatam, cuius sequela non est causa substancialis ulterior, quamvis B 166ᵃ deus | sit causa veritatis connexionis. Et ita vult quemlibet actum; sed non placet illi difformitas eius, que est peccatum. Vult ergo odium, sed non sic odere.

If asked what causes the necessity of sin, I reply: not God but our free-will. Yet as the fact of sin is pleasing to God, it depends on His eternal will; for God wills every act that takes place, but not its wickedness.

Sed postremo obicitur quod tota difficultas stat in abusione verborum de presenti pro tempore preterito et futuro; in quo fundamento non est difficultas, sed voluntaria deviacio a grammatica, ut patet ex concedendis a sic opiniantibus. Nam querendo quid facit Adam, Anticristus vel quicunque alius, diceretur quod ipse incipit esse, desinit esse, et breviter facit quidquid fiat vel faciet. Et tamen est mortuus vel est generandus. Negantur eciam a sic dicentibus syllogismi expositorii, et rectissimi syllogismi in quacunque figura; ut sic argumentando: *iste est albus* et *iste est niger; igitur album est nigrum; omnis homo est mortuus, omnis homo est vivus; ergo omnis homo vivus est mortuus* vel *omnis homo mortuus est vivus. Nullum album est nigrum; omnis homo est albus: igitur nullus homo est niger. Omnis homo syloyzat; aliquis homo est mutus; igitur aliquis homo mutus syloyzat.* Et sic de similibus infinitis. Sequitur eciam quod a privacione ad habitum possibilis est regressio; ut tam facile est me servari ne peccavero postquam peccavi, sicud ante fuit; et tam faciliter possum remediare quamcunque indisposicionem sicut unquam potui. Sequitur eciam quod filius meus ex michi dubio esset sapiencior me, cum tamen sim certus quod non habui filium. Nam si filius meus erit sapiencior me, ipse est sapiencior me. Sed ex michi dubio ipse erit sapiencior me: igitur ex michi dubio ipse est sapiencior me. Et per idem ipse est senior me in

It is objected lastly that I misuse the present for the past and the future, which is merely ungrammatical. What is Adam doing? he is beginning to exist. Yet he is dead. This theory, moreover, leads us to deny all expositorial syllogisms, and many others; to affirm that it is as easy to keep from sin after sin as before; that, not having a son, I may think that my son *is* wiser than I, since he *will* perhaps *be* so; or even that he is older than I;

1. adomio B. 11. vocat B. 12. michi B. 27. vivus est mortuus B. 36. exm B. 38. exm' B. 39. exm' B

casu, vel alias non valet exposicio comparativi gradus, nec exposicio de *differt* et *aliud*, nec aliqua exposicio supra dicta, continens diversitatem temporis.

unless I wish to contradict all that is here laid down.

Hic dico quod loycus debet aptare locucionem suam secundum exigenciam auditorii, pro loco, et tempore; ut puta, quando queritur de rebus transmutabilibus quomodo se habent ad circumstancias et actus particulares, tunc dicendum est particulariter, considerando hoc instans in quo sumus; et secundum hoc aptanda sunt verba, concedenda aliqua esse et non fuisse, ut illa que nunc sunt subita, alia fuisse et non esse, vel fore, subtiliando ipsa non esse nunc. Sic enim locuntur plebei, quando queritur si comederit vel audierit missam, dicunt quod non, restringendo questionem ad illud directe; et ad istum sensum locutus sum usque ad istud capitulum. Quando vero locutum est cum abstractis philosophis secundum consideraciones universales, transcendendo omnia corruptibilia, loquendum est de tempore et suis partibus quibuscunque, cum omnibus mensuratis vel existentibus in illis, ac si essent presencia; quod non potest concipi nisi acie intellectus, considerantis duracionem eternitatis supra tempus, et abstrahentis verbum figure presentis temporis a connotacione particulari cuiuscunque temporis: quod sine dubio singulariter grammatici rare sciencie swadent ad faciendum.

I reply that a logician must adapt his speech to his audience and to circumstances; so, when speaking of transitory and particular things, he will admit that the present is and and the past is not, nor the future; meaning *not now*; as, when a common person, asked if he has heard Mass, says, "No", meaning *not to-day*. But when he has to deal with philosophers on abstruse questions, he must speak of all the parts of time as being present, abstracting from the signification of *present* that of any particular time.

Unde aliqui concedunt talia, solum ampliantes verbum quando de deo locuntur; ut deo dicunt omnia merita et demerita, preterita et futura esse presencia. Et quando queritur utrum sunt vel non sunt, dicunt quod non sunt, sed sunt quo ad deum; sed hoc non infert illa esse Hoc tamen videtur michi preter racionem locatum. Ideo, sicut ampliando intelligo verbum sub figura presentis temporis, simpliciter sine connotacione particulari temporis, quando dico quod deus cognoscit, facit, vel habet sibi ista presencia; sic, quando similiter profero quod *ista sunt*, intelligo verbum ut tempus. Nec est michi vis concedere cum verbis adiectivis tales pretericiones, aut solum cum verbis substantivis et verbalibus veritatibus adiectivorum.

Some grant this extension only when speaking of God; all is present to God, they say, but that does not give it existence. This I cannot admit. When I say: *this or that is present to God*, I abstract from the idea of actual existence; I do no more when I say: *This or that is.*

Aliquis tamen probabiliter concederet quod omnis motus qui fuit vel erit, est; sed negaret omne quod

Some admit that a *movement* past or future, is;

6. pres B. 16. id B. 25. fu duo B. 42. fit *pro* fit B.

movebatur aut movebitur, moveri: ita quod non sequitur: *locucio Sortis est: ergo, Sortes loquitur*, propter equivocacionem connotacionis temporis per verbum. Sed non est veritas in ista diversitate. Quando vero non sic ampliavi verbum, bene negavi aliqua deo esse presencia, nisi ea que sunt, sed concessi pretericiones et futuriciones rerum esse deo presentes, et ille faciunt bona vel mala; et ista sentencia est satis vera in sensu suo.

but deny that *what was* moved is moved; but this is not true.

Ulterius dicitur quod non negans Adam esse, et dubitans dicit de Anticristo si est, non contradicit concedenti utrumque illorum esse pro tempore eterno, et non simul et semel. Et illa concedens quod ipse facit omnes actus difformes quos unquam fecit, referendo ad tempus preteritum, quod est pars temporis eterni, non contradicit neganti quod ipse facit aliquod tale, restringendo verbum ad ipsum *nunc*.

There is no real contradiction between one who does not deny Adam and doubts of Antichrist, and one who affirms that they exist, each in his time, nor between one who says he does all the bad actions he ever committed, and one who denies it, restricting his meaning to *now*.

Nec sequitur ex ista opinione aliquem sylogismum esse negandum, quin pocius sylogismos concedendos esse quos multi negant; ut patet de conclusionibus concedendis de oppositis predicatis de seipsis, sed non simul et semel. Et est propinquissima locucio quod deus est non solum ante generacionem Abrahe, sed eciam antequam fieret, et ante racionem stabilitatis sue, quod est eternum. Et ita hodie et cras Cristus vivit, et 3ª die consummatur. Ymmo, sicut credo carnis resurreccionem, Cristi mortem quam aliqui crediderant, et per consequens cum actus fidei non sit falsus, sequitur fidem creditivam esse veram; et ita deus diligit et wult omnia bona que erunt vel fuerunt, et per consequens cum [non] wult non ens, sequitur omnia talia esse. Et ita omne tempus, maius vel minus, componitur ex omnibus suis partibus. Et tunc aliquod ex centum annis, aliquod ex 4 annis, erit aliquod ex quotlibet instantibus. Nec sequitur hominem esse multiplicatum per diversa loca, etsi ille sit per diversa loca distancia, quia requiritur quod simul et semel sic esset, nec sequitur: *ista sunt: igitur sunt simul tempore*.

I deny no syllogism; on the contrary, I admit syllogisms that others deny. I admit that God is before Abraham's existence, and even before his eternal election.

All time is made up of parts; 100 years, 4 years, are all made up of instants.

Sed ulterius dicitur quod non sequitur omnem regressionem esse possibilem a privacione ad habitum, eo

Nor do I admit that a return from a privation

11. dicitur B. 11. antecristum vel de B. 24. c t, *pro* et B. 26. 9ſumatʳ B. 28. f⁹ B. 31. non *deest* B. 33. exce'tū ā^uis B. 34. ā^nis B.

to a former quality is always possible. A return implies that the quality has been lost. We may take thought about things past, but not *as* past things.

quod regressio ponit habitum fuisse, et privacionem postmodum fuisse. Unde non sequitur: *Ego possum habere istam formam* et *careo ista forma: ergo possum habere istam formam postquam carui ista forma.* Hoc enim ampliat hoc nomen, *regressio.* Nec obest consiliari de preteritis, sed non pro tempore pro quo sunt preterita; nec bene aliter admitteretur quod sint futura talia, aut quod sumus ante hoc instans, demonstrando ista que de facto sunt preterita, si illa essent similiter impossibilia. Possum ergo cavere de multis talibus de potencia absoluta.

Nor is my son perhaps wiser than I if I have no certitude that I shall have one; in the other case it is possible. He may be older than I if he lives 100 years and I then return to life; otherwise it does not follow.

Nec sequitur quod filius meus ex michi dubio sit sapiencior me, cum non habeam evidenciam quod ego habebo filium. Verum cum hoc est satis possibile. Nec sequitur a pari quod sit senior | me. Illud tamen est B 167ᵃ possibile, posito quod vivat centum annis, et ego sum noviter suscitatus. Et sic de quotlibet conclusionibus, in quibus oportet diligenter cavere de negacionibus et mensuris cum quibus est verificacio. Ut: *ego scio quando dies iudicii est,* sed adhuc ignoro hoc nunc, cum scio illum diem esse; quia credo absque contraria formidine, et iam est, sed non credo istum esse nunc.

The others say that time consists of parts which do not exist, that a vocal proposition is a proposition, but has no being; that the sacramental words are not true until completed; that there is nothing successive; that things move and last without motion or duration. They cannot account for age, which becomes greater and greater by succession, and can neither be increased nor diminished.

Alii vero comemorant verba sua sine fine, concedentes quotlibet impossibilia et adhuc wult esse; ut alii concedunt tempus et alia successiva componi ex partibus que non sunt. Et proposicionem vocalem concedunt esse proposicionem, sed non esse. Alii autem dicunt quod hec proposicio vocalis: *hoc est corpus meum,* non est vera antequam, complecione residui proposicionis, foret Cristus sacramentaliter in hostia. Alii dicunt quod non est possibile successivum esse vel aliquid moveri. Alii dicunt quod res moventur sine motu et durant sine duracione; et sic de multis quibuscunque impossibilibus, a quibus deus liberavit me sic loquendo. Non scirem enim aliter etatem meam, vel antiquitatem aliam sustinere; quia omnis talis est magna successive, et per consequens habet vel habebit partes. Et cum nulla singularis etas potest maiorari vel minorari, sequitur quod totalis etas sit continue eque magna; cum enim causatur ex adiacencia temporis, patet quod causatur successive ex tempore; quia aliter tempus causaret illam

7. ar *pro* aliter B. 8. aη *pro* aut B. 12. exm̄ B. 24. wᵗ B

subito in fine, quin illud tempus non esset. Habito ergo quod etas sit successive magna, patet quod oportet ponere etatem ita proporcionaliter [ad] senem, et non pro illo instanti in quo est quantumlibet iuvenis. Ergo relinquitur quod post, in tempore suo, sit sic senex. Sic ego nunc senior per indivisibile quam prius fui, quia est dare quam senex prius fui, sicud et danda est maxima etas hominis qui nunc deficit esse, et incepit mecum. Aliter enim non est dare quamdiu viveret vel quamdiu esset vita vel mutacio sua, nec totum cuius forent parciales etates. Non ergo est verum quod aliquid semper non erit per tempus aut per tempora.

A man's age being reckoned thus, old age must come on long after the age of youth, and old age has its comparative and superlative degree.

Quo ad $2^{m}$ dubium, videtur quod non idem tempus sit ubique, hoc est in omni loco; quia in nullo loco est accidens, nisi ubi est suum subiectum; sed non in omni loco est mundus quod est subiectum temporis, sed tantum in uno: ergo non in omni loco est tempus idem in numero.

Whether the same time is everywhere. *Arguments contra.* 1. The world is not everywhere, and time is unable to be where the world is not.

Item, impossibile est accidens esse unum, nisi presupposita unitate subiecti sui; sed mundus non est aliquid unum, ymmo agregatum ex omnibus creaturis vel vivis ista agregata: ergo, nec tempus est unum. Maior patet ex hoc quod non est corpus animatum continuum, nec aliquod ens predicamentale, cum tunc haberet animam, et omnia corpora inmediata essent continua.

2. The world has no unity, it is a mere aggregate; time cannot have more unity than the world.

Item, maior pars philosophorum non verterentur in dubium quin quelibet pars mundi potest esse mundus. Ex quo patet quod quotlibet partes mundi sunt eiusdem speciei cum mundo, et per consequens duraciones earum sunt eiusdem speciei. Et sic, duracione mundi existente tempore duracionis suarum parcium, forent tempora. Sic enim essent, posito quod substancia sua esset mundus; et per consequens, cum nullum tempus per accidens sit tempus, sequitur quod sunt tempora.

3. It is doubtful if a part of the world cannot be the world; so each part may be of the same species; therefore the durations of each part are separate times.

Item, omnis duracio corporis extenditur, omne tempus est duracio corporis: ergo, omne tempus extenditur. B 167b Maior patet ex hoc quod duracio parcium | corporis presupponitur ad duracionem tocius, tanquam causa; et non extrinseca: igitur intrinseca. Sicud ergo totum durans ad eius partes durantes, sic tota duracio ad eius parciales duraciones. Non ergo est racio quare

4. All duration of a body is extended, and time is the duration of a body.

3. ad *deest* B. 22. v'ius B. 25. ī me^ta B. 33. essent B.

motus vel aliud accidens extenditur, quin per idem tempus extenditur.

5. If time were the same everywhere, day would be night, autumn, winter and summer would be together.

Item, iuxta istam viam, sequitur quod dies sit nox, autumpnus sit ubi estas sit [et] yemps; tempus eciam saluberrimum et pulcherrimum foret turpissimum tempus et pestilencia; et sic de quotlibet denominacionibus oppositis temporum. Deduccio patet ex hoc quod idem est tempus in numero aput omnes. Illud ergo quod hic est nox, est allibi dies; et sic de ceteris conclusionibus expositorie inferendis.

I reply that the time which is night may be somewhere without its being night there. Those who dwell at the Poles have one day and one night in the year, of six months each;

Sed hic dicitur quod illa nox est hic, sed non est hic nox. Et ideo dicunt auctores habitantes sub polo habere totum annum pro die naturali, scilicet medietatem anni, sole existente in sex signis propioribus isti polo; et aliam medietatem anni pro nocte, cum sol per aliam medietatem anni erit in aliis sex signis distancioribus ab eodem polo. Et cum orison taliter habitancium sit equinoccialis circulus, patet quod unam medietatem anni habebunt pro die et aliam pro nocte; et alii habebunt diem eternum, sicud habitantes in celo extra umbram terre. Alii autem habebunt aliquando instans, vel verius agregatum ex paucis instantibus pro die artificiali; ut habitantes sub polo zodyaci, sole existente in solsticio yemali, et dum sol fuerit in solsticio estivali, est illis dies fere 24 horarum et nox unius instantis vel tempus agregati ex paucis instantibus.

and those who live in the frigid zones have in winter days, and in summer nights, of only a few seconds.

But I am answered (1): If what is day elsewhere is night here, then day is night; and yet where night is, there is no day.

Contra illam responsionem argumentatur primo sic. Sequitur, *dies alibi est hic nox, et cuiuscunque est tempus alicubi, huiusmodi est: ergo dies est nox;* et tamen, ubicunque est nox, est non dies. Sequitur quod dies est non dies. Et per idem sequitur quod quelibet pars diei vel noctis est dies et nox, et per consequens pars non est pars; et sic de aliis oppositis.

And night will be continually pursuing day round the earth, and day likewise. Time would move round the earth, and night and day, which are universals,

Similiter sequitur quod continue fugabit nox diem, et econtra circa terram proporcionaliter, sicud lux solis sequitur umbram terre; et econtra. Sed illud videtur loyco derisorium et posticum mendacium, cum tunc tempus moveretur circulariter ad motum solis. Ymmo

4. et *deest* P.

23. *Sub polo zodyaci.* Under the pole of the ecliptic. The ecliptic having about 23° of obliquity with the equator, its poles touch the arctic and antarctic circles.

foret tunc nox figurata continua, sicud umbra terre et dies sicud residuum mundi; quod non conveniet multiplicatis. Et conclusio patet, ex hoc quod continue erit eadem nox numero oriencior et quiescenti propinquior. Ergo per eius motum erit. Per idem dormiens in lecto mane, vel fugiens diem versus occidens foret continue propinquior diei; quod non posset esse, nisi propter acceleracionem diei supra fugam suam.

would have a semi-spherical shape.

Similiter videtur quod idem tempus potest augeri et alterari, cum motus celeriter versus occidens haberet diem diucius quam ipso in dando situ quiescente; et cum non continue haberet novam diem et noctem, sequitur quod ille per motum suum prolongaret sibi diem. Et de alteracione temporis videtur planius, cum dies potest serenari et nox obscurari. Annus eciam potest meliorari vel peiorari in fertilitate et bonitate, et sic de multis talibus denominacionibus qualitatum.

The same time could be increased and changed; a thing moving swiftly towards the West, would have a longer day; and the day may become finer, the night darker, the year more or less plentiful.

Similiter videtur quod ad omnem punctum sub terra sit nox, et per idem omne corpus terreum eclipsans directum aspectum solis ad medium dyaphanum faceret ibi noctem, cum non sit racio quare mane est vel sero, cespes terre vel aliquid mixtum faceret noctem per eius adumbracionem, quin per illud quodlibet aliud mixtum terreum; sicud patet, ymaginando quod loco terre ponatur quodvis terreum mixtum. Et tunc sequi-
B 168a tur | quid quidem ad nutum, per interposicionem manus vel alterius eclipsantis faceret noctem ubicunque fuerit. Ymmo quilibet portaret, tam extrinsecus per pannos vel alia tegumenta eclipsancia, quam intrinsecus, ad omnem punctum noctem suam secum. Et cum dies tam cerebro intercipitur, sequitur quod sunt mille noctes localiter distantes, sicud et dies. Nec valet dicere quod in lapidibus et aliis mixtis opacis nec est dies nec nox, tum quia omne tempus est dies vel nox ubicunque fuerit, vel saltem pars earum, tum eciam quia omne tale mixtum est porrosum, habens corpus dyafanum in eius composicione; et in infinitum in opposito loco potest esse nox adequate, sicud patet de nocte instantanea, que solum est nox in puncto terre supposito polo zodiaci. Sol ergo, respiciens terram,

Night would be everywhere underneath the earth; and every earthy body eclipsing the sun, would produce night;

night would be carried about under the clothes, in the body and the brain. There would be a thousand different nights and days. You cannot say that in minerals there is no night and no day; all time is one of the two, and minerals have pores, letting in the light. It is the sun that causes the

1. figãta B. 2—3. m̃ltit^e B 12. noun̄ *after* et B. 20. aspectu B. 28. tamquam B. 34. tη B.

causat illam diem infra illam diem, eo quod aliter quelibet abombracio per nubem terream causaret noctem. Et si potest dies remitti usque ad non gradum in claritate pro medio instanti, non foret racio quare esset plus nox quam dies. Sicud ergo hic, tempore in quo deficit illustrando, tunc hic est nox; quia aliter, deficiente sole, deficeret tam dies quam nox; vel aliter quelibet illuminacio causaret diem et quelibet abscuritas indifferenter causaret noctem; sed nunquam in sole, ubi non potest esse nox, sic dies.

day by beaming on the earth: otherwise every cloud would cause night; and night is when it does not beam; if the sun failed us, both day and night would fail, or day and night would be equivalent to light and darkness.

Dicendum quod sic, aliter non esset in celo dies eterna, suppositis predictis de tempore. Dicitur ad primum quod assumptum est falsum, cum relaciones et alii respectus, ymmo qualitates competentes composito multiplicantur per subiectum; sicud patet de similitudine, de sanitate, de voce, et multis similibus que non habent partes corpore extensas. Verumtamen equivocando de *esse* in alio, ut docuit Aristoteles, concedi potest quodlibet totum esse in qualibet eius parte, ut causatum in sua causa, et non ut locatum in suo loco. Et tunc neganda esset minor, cum mundus sit in omni loco, non dimensionaliter, sed causaliter. Et si derisorie inferatur quod *mundus sit in ore tuo*, et *tu totus in ano tuo*, patet quod leve verbum est et in sentencia nichil movens; sicut nec: *pars mundi est in ore tuo* et *pars tui est in tuo ano*. Nec oportet sentire ibi fetorem, cum non habens ibi olfactum, nec sicud dimensor abstractus strictitudine loci, sicud deus qui est ibi.

This we admit, and answer the foregoing arguments. 1. It is not true that accidents are only where their subject is; relations, v. g. are multiplied throughout their subjects. But if we say, as we may, that the whole is in each of its parts, then we deny that the world is not everywhere, though it may be said: The world is in your mouth, and you are in your anus: for this is a verbal quibble.

Ad 2$^{m}$ dicitur quod oportet ponere mundum habere quamdam unitatem; vel discretam quantitatem, ut habet populus; vel continuam, ut habet homo. Vel quomodocunque dicatur, mundus non est omnes creature, sed agregatum ex omnibus substanciis; sicud populus non est illi homines, sed agregatum ex hominibus conveni-entibus in pollicia vel ritu. Unde, sicud manet idem populus, quamvis non ultimum singulare manente eadem pollicia vel lege vivendi, sic manet idem mundus, manente eodem principe cum lege sua naturali et multitudine naturalium principiorum. Non ergo est nowus mundus propter generacionem vel corrupcionem, corruptorum sublunarium, quia manet idem deus cum suis

2. The world must indeed have a certain unity, or it would be a mere aggregate of substances.

As laws unify a people, so they do the world;

and it does not become other merely because of generation and corruption here below;

1 $e^{o}$ B. 3. sic B; *ib.* duo *pro* non B. 12 $\widehat{p}t^{9}$ B. 40—41. $cor^{9}$ $r^{9}$ B.

legibus et quelibet punctalis materia prima. Et quando auctores dicunt quod totum est sue partes, predicacio materialis est. Sicud enim utuntur auctores predicacione 2m causam, ut diem dicunt lacionem solis super terram, et illam lacionem vocant porcionem super terram circuli descripti super orisontem: ubi non est B 168b dubium | quin figurative locuntur; ac si dicerent quamlibet creaturam fuisse racionem eternam *esse:* ideo et ipsam racionem esse deum. Sic ergo intelligendo mundum discrete unum, ponit philosophus correspondenter quod genus temporis est numerus, hoc est mensura secundum naturales replicaciones instancium, mensurans motum.

for God, and the laws of nature, and primal matter, remain unchanged. The whole is its parts materially, not formally; it is a merely figurative expression. The world being one, Aristotle defines time as the measure of its motion.

Ponendo autem mundum esse animatum, tunc patencius est essenciam mundi (quia ipsam animam) esse ubique, sicud dictum est de homine. Et sic tempus est accidens in omni loco, sicut etas hominis est in omni eius parte. Et iuxta istam consideracionem foret duracio vel mora temporis; illa tamen mora est numerus, quia mensura que primo causatur ex numero instancium. Manerent autem adhuc ponendum tres raciones, primo ex hoc quod aliter non esset dare quod mundus est substancia, [sed] acervus alicuius non naturalis. 2° ex hoc quod mundus, cum sit quoddam totum et finis, gracia cuius constituendi sunt eius partes ordinate, est perfeccior quam aliqua eius pars. Cum ergo multe sunt partes mundi animate, et omne animatum sit perfeccius quam corpus inanimatum, sequitur quod mundus sit animatus. 3° ex hoc quod omnem accionem vel perfeccionem quam habet pars integralis habet suum totum; sed pars mundi habet intelleccionem, sensacionem, vegetativam, sensitivam, et motum ex se; ergo et mundus denominatur eisdem actibus, et per consequens vivit. Et pari evidencia ex se movetur, et celum sic movetur; omnes ergo partes mundi sunt anima regulante, quamvis non proprie vivant, sicud est in minori mundo, cuius superfluitates alique non vivunt, nec superfluitates trium digestionum correspondentes in maiori mundo 4 elementis et mixtis inanimatis ex illis completis. Superfluitates vero alie, ut pili, et cornua, correspondent plantis et arboribus; et ossa mineralibus. Sublunarii vero loci correspondent spiritibus;

But if we admit that the world is animated, then its essence (or soul) is much more truly everywhere.

If not, we cannot prove that the world is more than a mere aggregate. It must be, as a whole, more perfect than any of its parts; but some of its parts are animated, therefore, it must be so too. The whole possesses every perfection of its parts; now a part of the world understands, feels, &c. Besides, the world has self-movement. Comparison of the macrocosm with a living body, or microcosm.

4. di͡edut' B. 23. sed *deest* B. 30. pars B. 40. 9te B. 42. Subi͡ŋ B.

et sic terra attribuitur corpori hominis, aqua sangwini, aër spiritibus et ignis calori. Regio vero capitis correspondet celo, regio pectorum aeri, regio vero intestinorum correspondet aque et regio generativorum, cum posterioribus membris solidis, correspondet terre. Et ut breviter dicatur, quelibet proporcionalia contingit reperire in maiori mundo et minori. Sed quomodocunque sit de ista opinione, satis est quod mundus sit unus, et tempus sit, et numeros ipsum consequens ad mensurandum eius esse transmutabile.

At any rate, the world is one, and time is the measure of its transmutations.

Ad 3$^{m}$ credo quod illud assumptum pro opinabili sit inpossibile, cum nichil potest annichilari; quod tamen oportet ad hoc quod pars mundi foret mundus; hoc est, universitas creaturarum. Ideo nulla pars mundi est eiusdem speciei cum ipso; et per consequens cuiuslibet partis mundi duracio potest esse tempus, sed duracio tocius mundi.

3. Not admitting the possibility of annihilation, I do not admit that a part of the world can become the whole. And thus no part is of the same nature as the whole.

Sed obicitur: omne tempus est prius quam quandalitas ab illo causata; ergo, iuxta opinionem, duracio mundi foret prius quam duracio partis mundi. Consequens falsum, cum pars mundi sit causa mundi, et per consequens ipso prior; et per idem, ipsum | *quando* B 169$^{a}$ foret prius tempore, potissime cum potest esse sine mundo; sicut patet in mundi produccione, specialiter de animalibus.

It is urged: Time is prior to any duration caused by time; but as each part causes the world, each partial duration is prior to time

Hic dixi, ut sepe alias, quod non obest aliqua reciproce causare se in diversis generibus causandi. Unde partes mundi causant ipsum materialiter; et mundus econtra causat illas partes finaliter; et, cum finis sit causa perfectissima, patet quod in prioritate dignitatis, perfeccionis, et principate intencionis nature, mundus excedit quamlibet eius partem. Et sic se habet duracio ad duracionem. Utrum autem mundus sit in infinitum perfectus per generacionem unius supposito, quod sit deus et homo, componens parcialiter cum mundo, relinquo theologis, qui dicunt istam humanitatem esse tantum finite bonitatis. Sed hoc videtur michi certum, quod manet continue idem mundus, et

But different things may be reciprocally cause and effect, in different ways. The parts of the world cause the whole, as that of which it consists; the whole causes the parts, as that for which they exist. So also of duration. I leave to theologians whether or not the world

4. aqua B. 11. cdo B. 21 9ns$^{m}$ B. 26. d'r dixi B. 28—29. mundus et. 34. perfectum B.

15. *Cuiuslibet*. I think it would be more in agreement with Wyclif's general meaning to put *nullius*.

sic anime continue producuntur, cum quelibet anima sit accidens mundo. Correspondenter autem dicitur quod motus in communi est prior naturaliter tempore, et tamen tempus singulare est naturaliter prius quocunque motu singulari; sicud est de quantitate corporis in genere, presupposita ad quantitatem eiusdem corporis corpoream. Et tamen quecunque eius quantitas singularis est posteriori danda quantitate; et ita reperies in multis.

is now of infinite perfection. Each soul that is created is an accident of the world.

Ad 4$^{m}$ negatur assumptum, sicud patet de duracione hominis que manet eadem corrupto membro, ymmo corrupto toto corpore. Aliter enim non foret periodus animalis continua, sicud vere conceditur esse. Si ergo fuerit res habens partes quibus potest carere, tunc eius duracio omnino non dependet a duracionibus illorum parcium; nec per consequens extenditur, sicud contingit in animali. Et per idem duracio mundi non extenditur. Nec sequitur, si duracio mundi presupponit duracionem dei, que est eternitas, et duracionem anime mundi vel intelligencie, que duracio dicitur evum, et 3° duracionem materie prime, que est quandalitas, quod ex hinc ille duraciones presupposite sint eius partes; sed bene presupponuntur ut essencie extrinsece, non quo ad situm, sed quo ad essenciam; sicud qualitates prime sunt essencie extrinsece presupposite ad resultacionem qualitatum secundarum. Et sic de aliis multis accidentibus. Est ergo magna racio quare duracio mundi, que est tempus, non extenditur, et motus mundi extenditur; quia, quotlibet partibus mundi corruptis, foret continua eadem duracio mundi, sed non foret idem totalis motus mundi, corrupta parte mota Et ideo hinc est quod mundus durat indifferenter ad omnem eius partem sive motam sive quietam, sed non movetur alicubi, nisi ubi pars eius movetur. Ideo motus mundi dicitur velox vel tardus, uniformis vel difformis quo ad subiectum, sed non quo ad duracionem mundi, cum ipsa non requirit talem duracionem partis mundi sicut motus. Equaliter enim quomodolibet motis et quiescentibus inest duracio.

4. We deny that duration is extended; a man's duration does not change, if he loses a part of his body, or even the whole.

Time implies eternity and the 'acon', it is true, but these are not therefore parts of time.

The reason why the motion of the world is, and its duration is not, extended, is that if part of the world were destroyed, its motion would, but time would not be changed, for duration is the same, whether a body moves fast or slow.

Et si dicatur quod non [est] racio quare duracio mundi sit tempus, quin per idem et cuiuslibet sue

If it is asked why the duration of the whole world should be time, rather

11. eodem B. 20. omnium? B. 22 sed *pro* quod B. 24—25. $^{\text{m}}$q$^{\text{tes}}$ B. 39. est *deest* B.

than that of a part, we reply that it is because all other durations are accidental, and that alone is necessary; for the others might not exist. Time is thus the universal, indivisible and ubiquitous duration of all temporal things, as life is the animation of the whole body. Thus to call any other duration time, is an abuse of language. We do not deny that the duration of the simple points of which primordial matter consists, is extended.

partis duracio erit tempus, dicitur [quod] sic. Nam certum quod tempus est duracio successiva, quia aliter duraret alia successiva duracione, et tunc accidentaliter successive duraret, tanquam accidentaliter quantum. Et tunc non esset quantitas, sed esset processus in infinitum in duracionibus. Cum ergo omnis duracio sit alicuius durantis duracio, patet quod oportet ponere tempus esse *communem duracionem omnibus temporalibus, mole indivisibilem, et ubique.* | Sicut ergo vivificacio B 169b tocius corporis est vita animalis, et nullius partis vivificacio, sed vita inperfeccior alterius racionis, sic eciam est de duracione mundi et de duracione suarum parcium. Unde abutuntur terminis qui vocant quamlibet quandalitatem vel duracionem partis mundi tempus, sicud patet ex conclusionibus insequentibus et naturali conceptu quem quilibet habet de tempore.

Et si obicitur quod duracio punctalis materie prime habet posicionem et extensionem: ergo, duracio composita ex illis habet posicionem et extensionem; dicitur quod non obest predictis quod duracio mundi, sicut et vita animalis, sit multiplicata, et tamen duracio prime materie, cum sit alia, sit extensa. Non enim est pars alterius duracionis, sed ad illam presupposita.

5. Here there are three points of view. Either day and night are (1) not time, but the sun's motion, or (2) they are made up of motion and time, or (3) they are times. In the first case day and night are nowhere but in the sun, and there both together; for when we have day, there is night at the Antipodes. And in the sky, where there is always light, it would be night for ever.

Ad quintum sunt tres modi dicendi. Quidem enim negant quod dies vel nox aut aliqua pars eorum sit tempus, sed sunt motiones solis. Alii dicunt quod sunt agregata ex motu et tempore. Et tercii dicunt quod sunt tempora.

Contra primum modum dicendi patet quod communiter negarent diem vel noctem esse extra solem; et sic impossibile esset diem vel noctem esse in terra. Sed mocio solis foret continue tam dies quam nox; quia si nos habemus noctem, que est lacio solis sub orisonte, per idem antipodes habent diem nostrum pro nocte, que est lacio solis sub orisonte eorum. Sed quid plus inconsonum quam dicere quod est nox eterna in celo solum, ubi est maxima claritas? Ista ergo, si comparerentur in intelligencia dictis astronomorum in ista materie, ponerent diem et noctem porcionem circuli solis, quia illam vocant astronomi motum, et ita ponerent omnem diem vel noctem rem permanentem, et omnem

1. quod *deest* B. 3. acci$^{r}$ B. 11. enim B. 38. f$^{e}$ $\overset{\frown}{9}$ut$^{r}$ $\overset{\frown}{1}$ $\overset{\frown}{i}$ te$^{n}$ B. 39. pc$\overset{\frown}{om}$ B.

preteritam vel futuram existentem in hoc instanti; et sic de multis sequentibus ad que sic dicentes non plene advertunt.

Et sic patet quod 2ª posicio habet concedere noctem quamlibet esse diem, cum omnis talis sit ubique racione sue partis, et sic movetur cum sole, racione alterius partis, tam dies quam nox, continue.

The second position has also to admit that night is day.

Ideo, videtur michi quod 3ª posicio est melior, quem ponit tempus esse diem et noctem, sed per accidens; et ita evum, seculum, indiccio, lustrum, annus, mensis, septimana, dies, hora, momentum vucam bisse; et sic de ceteris partibus de quibus locuntur tam astrologi quam compotiste, sunt partes temporis, sicud patet discurrenti per dicta autorum et wulgarium. Ista materia bene conceditur; sicut oportet utramque viam predictorum concedere, quod omnis dies est nox, et econtra. Ymmo, stante sole, foret eadem dies in numero quo modo, quia dies eterna, que foret nox eterna, etc Ergo patet quod lacio solis non est genus ad diem vel ad noctem. Et ita conceduntur alique conclusiones sequentes ex illa posicione; notata tamen distinccione inter dies artificiales et naturales, et quomodo denominaciones predicte insunt tempori, sicud tangitur in responsione sequenti. Nec est inconveniens
B 170ª tales | denominaciones inesse eidem pro diversis locis aut diversis temporibus, sed non simul et semel.

I prefer the third view, and say that time is accidentally day or night, or an age, a century, a year, &c.

Both the other views must grant that day is night, and that if the sun stood still, there would be both eternally. We admit many of the above arguments, merely distinguishing between *artificial* and *natural*.

Tunc ad primum argumentum contra primam responsionem patet quod assumptum est concedendum, sed maior est neganda. Non enim sequitur: hoc tempus est hic nox, ergo est hic non dies; quia, si hic est non dies, tunc est non dies, et per consequens non est alicubi dies. Ideo bene conceditur tanquam sequens quod *iste dies non est dies alibi*, sed non sequitur *hoc est non dies hic, ergo hoc est non dies;* sicud non sequitur: *hoc non est dies hic; ergo, hoc non est dies.* Conformiter autem dicunt theologi quod Christus est ubique, sed non ubique est ille homo, nec alicubi est non homo, sed alicubi est non homo ibi illud quod non est homo ibi: quod idem est. Sic ergo multe partes diei et noctis sunt tam dies quam nox, secundum

Answer to the attacks on my first reply. I. (6). We deny that the present time is night here, but grant that what is day here is night elsewhere. Christ's manhood is not everywhere; it does not follow that the Word is not man. Many parts of day and night are as much one as the other;

8. quam (!) B. 11. vuca biffe B. 12—13. quam artiste quam ypotifie B. 15. Sicud B. 28. am B.

11. I am quite unable to make anything out of these words, *vuca biffe*.

obliquitatem vel rectitudinem spere quo ad habitantes dispariter in orbe terrarum; sicud patet considerantibus subtiliter istam materiam. Est tamen dare tam diem quam noctem longissimam, quam eciam brevissimam; sed non video adhuc quod quelibet pars diei aut noctis sit tam dies quam nox, cum quotlibet instancia nec sunt dies nec noctes.

or rather neither the one nor the other.

7. We deny that time moves.

Ad septimum respondetur, negando conclusionem primo assumptam; quia, cum omne tempus sit inmobile localiter sicud mundus, patet quod non competit ipsi circulacio. Ymmo, si mundus moveretur motu recto, adhuc foret tempus ubicunque foret situs, sicud idem tempus esset commune duobus mundis, si essent.

Those who say that light pursues darkness,

or that the duration of man is most transient, attend only to the number of miles described by the equinoctial point, which measures time, and predicate the effect for the cause.

Night, though existent throughout a space that has a shape, has no shape.

Night and day are everywhere, but not artificially; the former only in the earth or its shadow; the latter everywhere else.

Night may be nearer and nearer to a fixed point, but it does not properly approach it; the cause of night only approaches.

Illi autem qui ponunt lucem fugare tenebram, sicud canis leporem, intelligunt de speciebus lucis et speciebus tenebrem paulo contraccius, et non de ultimo singulari. Et sic intelligunt illi qui ponunt tempus hominis, et per consequens eius duracionem, velocius transire quam aliquod notum sublunarem. Attendunt enim ad miliaria que punctus equinoccialis describit: et cum ille motus sit mensura temporis, et sic per accidens causa eius, dicunt in predicacione $2^{m}$ causam quod tempus tam velociter transit, et per idem etas hominis. Tales autem predicaciones non admittit logicus, nisi ex convencione. Non ergo sequitur quod nox sit figurata, quamvis multiplicetur per situm figuratam; quia tunc deus esset spericus, sicut mundus et anima figurata sicud homo; et sic de aliis multiplicatis.

Nox ergo et dies sunt ubique, quamvis non ubique sicud nox et dies artificialis. Nullibi enim est nox, nisi in terra vel oppaco terreo, aut eius umbra; et per residuum mundi est dies. Et sic expansius est dies quam nox, quamvis nox sit expansius dies et nox; positivum namque prestancius est privato. Nec sequitur: *continue eidem quiescenti erit eadem nox propinquior: ergo, illa nox movebitur;* sed sufficit quod hoc fiat per motum alicuius facientis ipsum tempus esse alicubi noctem ubi prius non fuit nox. Unde nox nulli rei potest appropinquare, quamvis potest alicui propinquius esse. Racio enim diei vel noctis movetur, sed non nox vel dies.

2. orbem (!) B. 7. sunt *twice* B. 9. a$^{tam}$ B. 27. ſpus B. 32. expaſius B. 33. erit B; *ib.* poſim B. 34. pna$^{o}$ B.

B 170[b] Ac si concederetur | quod si deus michi posset esse propinquius homo per assumpcionem humanitatis, sine hoc quod ipse moveatur (quod quidam concedunt posse fieri sine hoc quod aliquid moveatur). Unde conceditur de possibili quod continue propinquabo localiter isti homini cui nichil potest appropinquare localiter. Ymmo iste homo est propinquior michi ad quemlibet punctum mei quam aliquis alius homo potest esse. Et tamen movebor continue versus illum hominem a quo disto per quantumlibet spacium. Videtur tamen melius concedere quod ille *propinquius* est homo quam fuit, quam concedere quod iste homo est homo *propinquior* quam fuit. Non enim est propinquior res quam fuit; et tamen, ut est homo, est aliquid. Et fere conformiter est dicendum in terminis accidentalibus de tempore.

So I may come nearer in space to God as Christ, and yet God is nearer to me than any man can be.

Nota tamen quod contingit intelligere istos terminos accidentales temporis in supposicione simplici, modo quo superius dictum est, et consequenter negare quod dies est nox, et sic de aliis temporalibus conclusionibus concessis in supposicione predicabili. Nec sequitur ad sensum illum expositorie: *hoc tempus est dies et hoc idem tempus est nox; ergo, dies est nox;* sed bene sequitur quod illud tempus quod est dies est nox.

We may also deny that day is night, merely admitting that *the time which* is day is night.

Ad 8[m] dicitur quod conclusio non sequitur propria predicacione de eodem tempore in numero; quia motus sic versus occidens haberet infinitas noctes et infinitos dies, communicantes tamen secundum mutacionem sui orisontis. Sed species diei vel noctis potest prolongari vel breviari secundum diversa eius individua, et eadem dies vel nox in numero potest large loquendo, alterari, serenari, vel obumbrari, fieri salubris vel obnoxia; non quia tempus sit substancia subiecta illis qualitatibus vel illis accidentibus, sed quia cum tempore ista contingunt; ut tempus dicitur amenum illi cui contingit amenitas in illo tempore.

8. A man travelling towards the west might have an infinite number of days and nights of different lengths, according as he changed his horizon; but this would not be properly the same individual time.

Ad nonum dicitur [quod], loquendo de die et nocte artificiali, contingit varie valde distingwere raciones eorum, ut aliqui dicunt ubique esse noctem ut non est sensibile lumen solare; et, sole existente in meridie emisperii nostri, habemus noctem tam inter nos quam extra, et [ad] alia puncta habemus simul diem, sed non

9. We must carefully distinguish the meaning of words. Some say there is night

7. propinquus B. 11. fc' B. 18. quo ad B. 25. parte *pro* predicacione B. 27. 1η B. 36. quod *deest* B. 41. ad *deest* B.

whenever there is no sensible solar light; thus we may have night at midday; thus the moon eclipsing the sun, causes night, and we have day after sunset because of reflected sunbeams. But it is better to admit artificial day to exist whenever the sun, being above the horizon, causes sensible light.

in eodem situ sed ad eundem situm in numero. Et ita luna vel quodlibet aliud umbrosum, eclipsans solem usque ad insensibilitatem luminis, causat ibi noctem; et sic in horis crepuscularibus est dies, sicud est per refleccionem luminis solaris ad obstaculum, sed non per lumen incorporatum in luna vel alio astro. Artificiosius tamen et cercius videtur loqui, ut astronomi locuntur, concedentes ubique terrarum esse diem artificialem ubi sol est super orisontem ibi locati, causans lumen sensibile. Dies enim connotat lucem vel claritatem, nec refert quod corpus oppacum distingwit emisperia inter que orison intercidat, sive fuerit terra sive terreum.

Why does an opaque body cause night at dawn or sunset, and not during the day? Because in the second case the sun is above, in the first, below the horizon.

Et si queratur a sic dicentibus quare mixtum in ortu vel occasu solis causat noctem, ubi multum relinquum de lumine, et non eclipsando solem super orisontem, plus tollendo de lumine; potissime cum sol ibi situato tam oritur quam occidit: dicitur quod huius racio est, quia sol [est] supra orisontem $2^{i}$ situati et non super orisontem | primi situati, et hoc sonat dies vel nox artificialis de vi vocis. B 171[a]

Would the moon, if self-luminous, and if the sun were destroyed, cause day and night? It would.

Et si queratur utrum luna habente lumen proprium, corrupto sole, causaret per suum motum diem et noctem, dicitur quod sic, cum dies et nox maxime constituuntur per luminosum quodcunque fuerit. Et sic potest dici quod illud tempus quod est hic nox foret subito hic dies per annichilacionem solis, mota luna super orisontem, ipsa existente ex se maxime lucida inter luminosa.

Have the inhabitants of valleys &c. night when the sun is concealed from them? Yes, if it is below their horizon.

Et si queratur utrum habitantes in locis valosis habent noctem quando sol eclipsatur illis per terram, dicitur quod sic, sole existente sub orisonte eorum, et aliter non. Et quod queritur utrum, corrupto sole, foret ubique nox, dicitur quod sic, si nichil supleat vicem solis.

Day or night is everywhere; in the sky, it is always day, beneath the earth, always night.

Ulterius concedi potest quod ad omnem punctum mundi est dies vel nox; et sic in quotlibet sitibus. In celo est dies, ubi non est nata naturaliter esse nox. Et infra terram est nox in multis corporibus, infra que non potest esse naturaliter dies; ubicunque tamen est nata esse dies, sicut aliquod est luminosum quod non est natum esse tenebrosum, et econtra aliquod eternum

15. r'linq,' B. 18. tame B; *ib.* quod B. 19. est *deest* B. 25. per *deest* B.

visivum quod caret aptitudine ad cecitatem. Patet ergo quod ad hoc [quod] hic sit dies, requiritur hic esse tempus in quo sol est supra orisontem huius situs. De aliis vero partibus temporis ut 4 temporibus anni et aliis de quibus locuntur compotiste, oportet diligenter advertere quomodo causantur secundum denominaciones accidentales, connotando extra racionem temporis, et quomodo iniciantur et equivocantur; et iuxta hoc respondere, ut patet exemplariter ex predictis.

Day is thus the time when the sun is above a given horizon.

What has already been said will suffice to give a notion of the difficulties that surround the other parts of time.

Quo ad dubium tercium, videtur quod, cessante omni motu sensibili, non foret tempus, quia omne tempus requirit prius et posterius in motu, sed solum in motu sensibili sunt prius et posterius; ergo solum in motu sensibili potest fundari tempus; igitur. Maior patet, ex hoc quod si tempus posset diffiniri per prius et posterius in seipso, tunc posset idem diffiniri per se vel per suum posterius; et tunc tempus posset habere prius et posterius ex se sine motu; quo dato non est fingendum quid tempus dicit ultra *esse* rei.

Whether movement implies time. (1) Where there is no movement at all, there would be no time, for time requires a *Before* and an *Afterwards*, which is found only in movement.

Item, pono quod non sit motus sensibilis, et ymaginetur homo de tempore; tunc patet quod esset tempus, quia aliter non esset ymaginacio diuturna gignitiva fastidii. Et quod non oportet ex hinc ponere motum, videtur ex hoc quod stat ymaginativam terminari continue ad idem simulacrum pro eadem re, sine generacione nove speciei vel nova terminacione actus ymaginandi Et sic non pocius foret ymaginacio successiva quam est visio vel quivis alius respectus, cum successio requirit diversitatem materie motus.

(2) On the other hand, let us suppose that there is no movement, and that a man sets to fancying time; there would be time by the very fact.

Item, si possibile est omnem partem mundi privari motu locali, possibile est omnem partem mundi quiescere similiter a motu. Pono ergo hoc, et sequitur ex quiete tempus esse, cum aliter non esset quies illa longa. Stat ergo tempus esse sine motu similiter. Nisi enim quies temporis esset temporanea, sequitur quod tempus immediate precedens illam quietem, et tempus immediate subsequens illam quietem ex incepcione motus, essent vere continuata ad instans quietis (et per consequens

(3) As each part of the world can be deprived of local movement, it can rest from movement; suppose that done, and the world must rest in time, or the rest would not have any duration.

2. quod *deest* B. 5 9potifte B. 19—20. ẏgine^r h͡o B. 25. gac͡oneB 32. p͡o B; *ib.* fc^r ex *twice* B. 33. lo͡^a B.

19. *Item.* The preceding argument proves that time depends on movement; those which follow go to prove the contrary.

continue), esset tempus, ex hoc quod continue esset instans et non continue motus.

(4) The slowest movement would be the quickest; for, supposing that the first mobile stops, and that the hand of a clock of one foot diameter goes round in one day; the First Mobile would move one point every instant; so there must be infinite rests, or the hand would describe as much space as the First Mobile.

Item, contingit quantumlibet tarde motum esse velocissime | motum, cum quelibet pars mundi potest B 171b quiescere, mota alia. Posito ergo quod orilogium cuius dyameter sit pedalis, volvatur semel per tantum temporis quanta est dies naturalis Et sequitur ex predictis de individualibus quod erunt infinite intercisiones in revolucione A, sicud essent circumducto celo cum A; quia aliter essent tot puncta in circumferencia A, sicud in circumferencia mundi sunt. Cum moveretur ergo per omnes istas penes istas moras intercidentes, non esset motus, quia nichil A vel pars eius. Sequitur quod tempus potest esse sine motu; et per idem quantumlibet magnum tempus.

(5) The world might not have been moved immediately after its creation; yet time began with the creation of the world, and its rest being a successive state, would have been measured by time.

Item, possibile est quod mundus creatus per quantumlibet tempus similiter quievisset et post motus fuisset; ergo tempus non requirit talem motum. Assumptum patet ex hoc quod quies est de se successiva, sicud motus, ut prius dictum est; ergo, si est quies, est tempus. Aliter enim posset quies nunc esse permanens et alias successiva; quod est impossibile, cum aquirerem per totum novas partes in successione, et nichil quod fuit permanens foret pars quietis successive. Et casus de quiete tocius foret multis patenter possibilis, cum quies sit perfeccio rei gracia cuius est motus. Et in signum huius, perfectissima mundi quiescunt continue.

*Answers.* We say that time implies some sort of sensible movement; for intellectual movement and even certain sensible attractions do not imply a *Before* and an *After*.

Ad illud dubium respondetur, concedendo quod [si] non sit motus sensibilis exterius vel interius, tunc non est tempus. Ideo, sicud necesse est tempus esse, sic necesse est motum sensibilem esse. Unde, non in quocunque motu fundantur prius et posterius successiva, sicud patet de motu intelligencie a deo; et breviter de cuiuscunque substancie motu quo tendit in finem suum. Sic enim innititur quelibet particula terre quieti in centrum mundi et omnes substancie in deum, tanquam centrum ubilibet multiplicatum; sed in talibus motibus non habebit ymaginacio materiam successive aquisitam vel deperditam, racione cuius causaretur instans differens a tempore; sed omnis talis motus foret 2m se totum simul, sicut est de evo et eternitate.

5. or'logui B. 13. m̂ı a ul̂ B. 28. si *deest* B. 41. sic B.

Ex istis patet quod sentencia primi argumenti caret calumpnia, eo quod motus intelligencie est principium remotum ad quod non consequitur tempus. Unde ymaginato quod totus mundus cesset a motu sensibili extrinseco perceptibili, lata ymaginacione super prius et posterius, videndum est utrum actus ymaginandi sit permanens; tunc sequitur tempus esse, eo quod ymaginans est pars mundi sensibiliter mota, et per consequens mundus secundum illam partem movetur.

(1) The first argument is, therefore, quite conclusive. If we can suppose the whole world at rest and only imagination active, representing time, we say that imagination moves, and, therefore, the world moves. When we imagine time in particular, the object and the act change successively.

Communiter eciam, quando ymaginativa fertur super preterito et futuro in particulari, non est facile hoc fieri, nisi successive, sicud quantumlibet ymaginamur prius tempore unum et posterius tempore aliud. Ex tali autem ymaginacione causatur intencio speciei fixius in ymaginativa, et debilitas vel potencia ymaginantis ex delectacione vel tristicia, et bonitas vel malicia, fortitudo vel fastidium, aut alie huiusmodi qualitates, racione cuius aquisite vel deperdite, saltem secundum intensionen vel remissionem, ex sequitur tempus ad alteracionem successivam. Nec est possibile ymaginacionem nostram coniunctam motui mundi secundum disposicionem in qua nunc sumus ferre super tempus in particulari sine B 172ª successione actus ymaginandi; qui, cum | mundus sit quoddam unum, oportet in eius motu esse unum non motum movens ordinate suas partes; quo cessante movere, cessaret totus ordo illius motus.

Nor can it possibly be otherwise.

Sicut enim in animali ulterius effectus est motus cui proxima est virtus motiva localiter in suis subiectis, ut spiritibus vel calore; et 3° sunt membra solida, ut musculus, villus, lacertus vel cetera organa, quorum composicionem ista ingrediuntur. 4ª est appetitiva anime movens, imperando virtuti motive corporali; et hanc appetitivam movet apprehensiva convenientis vel nocivi tamquam ultimam, et primum movens ita quod, cessante illo movere, cessaret omnis motus animalis. Sic ymaginandum est in maiori mundo quod est dare motum sublunarium tamquam ultimum effectum cui proxima est vis celestis influxa per lumina diversimode incidencia et 3° sunt astra celestia cum suis coniunctis orbibus. 4° vero est appetitiva mocionis orbibus, et 5° finaliter est apprehensiva primi motoris.

Comparison of the movements in an animal with those of the macrocosm

18. ĩte'ffiom B. 23. qui c͡u B. 27. a͡lı vlcı⁹ B. 32. hac B
39. ꝯ⁹ B. 40. mocc⁹ (?) B.

In all movements, we must come to a First Motor, immovable in Himself,

moving spiritual beings spiritually, and material things materially.

But material movement must one day cease, because it is imperfect.

All generation and corruption will then come to an end. As in the microcosm, so in the macrocosm, there are two sorts of movements, one proceeding from the First Motor, the other from the soul. Man will one day be incorruptible, and the world perfect; yet some of its parts will still move, and this will constitute time.

Necesse ergo est quod in motibus ponderosorum et levium, et generaliter in omnibus sublunaribus motibus qui non sunt mobiles ex se moti, sed ab alio, fit motus resolubilis ad omnem motorem mundi ex se moti; quem motorem oportet esse immobilem; et ille generaliter movet esse partem mundi in quantum movetur. Sed diversimode movet, insensibilia motu spirituali et sensibilia motu corporali; quia, cessante perfecto ordine movendi in motu sensibili, cessaret motus elementorum mixtorum ab alio. Verumtamen, cum omnis talis motus sit actus imperfectus, causatus propter ordinem insitum quantitate vel qualitate acquirendum, patet quod oportet talem motum aliquando cessare, et alium spiritualem continuari eternaliter, modo quo philosophi nostri dicunt fore post diem iudicii. Tunc enim non erit aliquod mixtum, nisi homo vel pars hominis, vel forte astrum. Sed, cessante motu celi, cessabit generacio et corrupcio substancie, et omnis materialis alteracio vel motus in quantitate. Sed sicud est in minori mundo, est dare duas manieres motuum, quorum unus est a natura corporea et non alius, reliquus autem est ab anima: sic in maiori mundo est dare duas manieres motuum, quorum unus est sensibilis naturalis, cuius motor celi est principium; alius autem est spiritualis et intencionalis, cuius anima, que est supra omnia corpora, est principium. Manebit ergo tunc homo incorruptibilis, sicud et quilibet pars mundi ultimate perfecta, et mutabitur homo intencionaliter tam a sensibilibus quam ab intelligenciis B 170 insensibilibus mutacione successiva; et hoc secundum omnes vires anime. Non ergo est possibile mundum similiter quiescere secundum omnes suas partes; et cum motum successivum in communi consequitur tempus, satis est ad perpetuandum tempus.

Therefore the case put in (2) is impossible. If a man could imagine anything without any succession of acts, it would not be time but a sort of *aeon*.

Per ista patet ad 2$^{m}$ argumentum quod casus est impossibilis. Ymmo, posito quod homo fixe ymaginetur sine successione quacunque mundi, sequitur quod non esset tempus sed mensura quedam proporcionalis evitate intelligencie, sine prioritate vel posterioritate in successione, nec generaretur tunc fastidium vel aliud ens predicamentale; nec foret aliud tunc diuturnum, et si maneat sic eternaliter, quia cuiuslibet rei duracio foret

7. ſpu͡ali B. 12. omnem *pro* oportet B. 29. mu$^{u}$o͡e B. 3 . eni$^{ti}$ B.

37. *Evitate*. Derived from *evum*.

tota simul, sicud est de eternitate. Nec capit ymaginacio nostra infirma talem statum hominis, cum propter B 172[b] mutabilitatem organi omnem apprehensionem | nostram consequitur vel comitatur successio. Unde leve dictum est ponere quod ymaginans sine successione tempus faceret, quia cicius intellectus hoc faceret; et sic tempus esset eternum propter eternam intencionem temporis a prima causa. Et propter hoc omne ymaginans habet suum tempus quod esset duracio sui actus ymaginandi. Et per idem sine dubio quelibet duracio successiva foret tempus.

We cannot even conceive such a state, and it is frivolous to say that it would be time: time would in that case be eternal.

Et si queratur quomodo erit successio in motu post diem iudicii, dicitur quod erunt duo genera hominum ex opposito locatorum habituatorum et passionatorum, quorum unum erit in celestibus plene felicitatum, et aliud iuxta centrum, plene miserum. Et primi habebunt actualiter perpetuo claram noticiam et plenam delectacionem in primo motore, et post hoc habebunt discursus cognoscendi omnes veritates causatas cum quadam successione, sine diminucione sui gaudii, propter securitatem sui habitus, excluso fastidio et errore in suo discursu. Et breviter omnes vires anime erunt plene suis actibus perfectissimis circa sua abstracta maxime proporcionata ad ipsas delectandum. Circumstancie vero actuum sensuum hic in statu corporali, que includunt perfeccionem, erunt ibi ablate, et solum illud quod est perfectum ibi remanebit; ut nemo generabit ibi, nec augmentabitur, nutrietur, percipiet sonum, odorem, saporem, vel qualitatem tangibilem per violenciam aut materialem immutacionem sui organi. Sed organum erit ad tantum perfectum quod percipiet armoniam sonorosam sine violencia, causantem consequentem motum non successivum sed permanentem, qualis erit ad omnem punctum celi, dum quelibet eius pars violentacione alterius intelligitur suo ordini situali. Sed talem sonum non sufficimus nunc percipere propter peccatum inobediencie. Ideo dicimus quod non est talis sonus, cum tamen non sit racio quod motus violentus causaret sonum, quin multo magis in omni mixtione naturali causetur ex motu non successivo sonus armonicus, ut

Of the happiness of the blessed in Heaven.

They will have full knowledge of and full joy in the First Motor, and will know all truths.

All the powers of the soul will produce the most perfect acts.

There will be no generating, eating, hearing, &c.;

but the organs will be so perfect that they will perceive

sonorous harmony without the need of sound,

14. pa° natore B. 20. dicione B. 32. fancrosam B. 35. intlr B. 40. cer B.

fragrance without wanting to inhale vapour,

dicit Boecius. Et eodemmodo olfactu percipietur odor summe proporcionatus, sine fumali evaporacione, cum ipsi sensui subicitur fumus aereus mundissimus, colore igneo temperatissimus; nec movetur hic talis fumus infra nares ad confortandum cerebrum, et tam realiter inmutandum olfactum, nisi propter defectum virtutis.

the most pleasant tastes

Et conformiter gustus habebit saporem temperatissimum sibi obiectum, cum ibi erit siccum terreum proporcionative mixtum cum humido aqueo et callido igneo

and feelings likewise;

movente. Et eodem modo sensus tactus percipiet suum maxime tangibile, et sic erunt omnes sensus interiores et exteriores in summa sue delectabilissime apprehensionis.

and all as nothing to the delights of the mind and heart.

Sed omnes iste delectaciones erunt raptim exhauste propter delectacionem racionis et voluntatis in suo finali obiecto.

Sound is a state of matter that acts on the auditory faculty;

Querendum autem est de circumstanciis et quidditate hic narratorum. Dicitur quod sonus idem est quod sonacio et disposicio secundum quam materiale est immutativum virtutis | auditive. Et sic odor vel odoracio B 173a est disposicio mixti aerei secundum quam ipsum est

odour, savour, and the rest, are also similar states.

motivum virtutis olefactive. Sapor vel saporositas est disposicio aquei humidi, 2m quam ipsum est immutativum virtutis gustative; et sic de qualitatibus 2is tangibilibus. Et omnes ille qualitates habent certas proporciones miscendi elementa secundum atthoma vel partes divisibiles, ex quibus resultant non quod sint res que possunt per se esse, sed sunt disposiciones vel potencie mixtarum ad taliter obiective immutandum. Et

And the corresponding feelings are states produced by their objects in the senses, which may have them without the aid of those objects. We need not go into this question

eodem modo intenciones vel species in sensibilibus sunt disposiciones illorum, causate ab obiectis secundum quas sensus sunt apprehensivi eorum. Et illas possunt sensus perfecti aquirere, sine immediacione obiectorum vel accione similium specierum per medium. Ymmo, vere loquendo, sensus sunt quodammodo cum obiectis a quibus afficiuntur, et rapiunt vel eliciunt species ab illis quem ad modum specialiorem noscendum, cum non sit multum pertinens huic loco, relinquetur studentibus; capiendo quod tota imperfeccio erit subducta, et totum quod erit perfeccionis persone tali possibile remanebit.

1. fume *(very plain)* B; *ib.* fuali B. 3. fumg B. 11. erit B. 12. i fuune B. 18. fona° B; *ib.* male, *or* mole B. 21. humidi aquei humidi B.

Et econtra in gente opposita. Illis enim erit dolor perpetuus sine dissolucione alicuius particule vel virtutis. Nec obest ignem vel quodcunque horridum naturaliter hominem inmutare spiritualiter perpetuo sic punitum; quia dolor non est nisi displicencia de obiecto, vel quia ipsum est presens, sed inproporcionatum appetitui, vel quia ipsum conceptum delectabile deest. Et sic in illis ingeminatur dolor. Quod autem dolenti sic inpertinens [est] sui dissolucio, patet ex hoc quod stat hominem quantumlibet gaudere in eius dissolucione, et quantumlibet dolore terreri, vel horrere nichilominus eius deperdito. Si ergo queratur quid erit primum movens omnium istorum, dicitur quod prima veritas, prima iusticia et prima causa, que est iam primus motor mundi et cuiuslibet sue partis; sed sicud iam movet motu extrinseco et materiali sensibili, mediante motu celi, ita movebit tunc motu spirituali, mediantibus racionibus iusticie, animas et eorum corpora; et forte movebit localiter tam beatos quam miseros. Raciones autem fundamentales hic dictorum relinquo theologis, sicud et totam materiam ulterius pertractandam, contentatus de hoc quod necesario est semper motus successivus.

Of the damned. They will suffer for ever, without losing anything of their body or their faculties. Pain is but the unpleasantness of an object that does not agree with the desire, or that, agreeing, is absent. Dissolution is here irrelevant to pain; a man may feel joy as well as terror at the thought of dissolution. The cause of these pains is the First Cause, Source of all truth and of all justice. I leave the thorough examination of this matter to theologians.

Ad 3$^{m}$ dicitur quod assumptum est impossibile, cum necessarium est beatos, preter noticiam quam habent de deo propter perpetuam unionem, noscere discursive res per motum circuli, primo in deo, 2$^{o}$ in proprio genere, 2$^{o}$ reflectendo in deum, ad quem statur ut ad primam et ad ultimatam causam, in quo sunt omnes veritates quodammodo resolubiles. Nec est inconveniens delectacioni talem circularem apprehensionem esse successivam; quia non ex eius deperdicione deperditur beatitudo essenciale nec erit delectacio successiva. Verumtamen non claret michi adhuc utrum possibile
B 173$^{b}$ est omnem motum localem corporum hominum | cessare, vel necessarium sit aliquod corpus tale moveri localiter tam celeriter sicud movetur aliquis punctus mundi. Quod si sic, foret consequencia assumpta bona, sed antecedens eius impossibile, admitti.

(3) It is impossible that all movement should cease in the world; for the Blessed have successive knowledge of things; which constitutes movement. Whether all bodily movement can cease, or must necessarily continue, is not yet clear to me. Different answers, according to cases. We may even admit the

Vel illud antecedens potest admitti, tanquam predicacio michi neutra, et negari consequencia; et potest

8. i gemar B. 9. est *deest* B. 10. disso B. 11. dolo'e B. 12. e$^{9}$ B. 19. bos B. 26. dist$^{r}$ fine B. 1. delectacionem B. 38. a$^{ta}$ B. 39. admitti *deest* B. 40—41. pe$^{o}$ B.

gracia argumenti admitti consequens possitum, distingwendo de quiete, ut dictum est de motu. Aliquando enim dicitur quies similiter pro carencia cuiuscunque motu. Et isto modo dicitur deus anthropologice quiescere in se eternaliter, quia est finis ultimus non potens in aliquem extra se ad eius indigenciam tendere. Et ista quandoque vocatur requies figurative, cum requies opponitur labori, sicud quies motu. Et illo modo solum essencia divina potest quiescere. Quandoque autem dicitur agens quiescere, quando cessat a produccione nove nature extra se; et hoc dupliciter; vel secundum speciem, vel individuum. Agens enim naturaliter, pro effectu quem non habet, tendit in illum habendum quo adhuc caret; et quamvis non ut sic movetur, tamen ut sic agit et accio talis in aliquibus est labor. 3° dicitur aliquid quiescere, quando ipsum habet suum finem extrinsecum cui innititur; et taliter quiescit quelibet particula terre in centro, et omnis creatura in deo, sed valde dispariter: ut aliqua habent quidquid appetunt habere; et illa, si fuerint cum hoc racionalia, sunt beata. Aliqua vero carent multis finibus accidentalibus requisitis ad eorum perfeccionem. Talis autem quies non includit de se successionem, nec excludit motum permanentem qui est nisus vel tendencia in finem extrinsecum. 4° modo dicitur aliquid quiescere, quando ipsum durat per tempus per quod caret motu dando, quo natum est moveri per illud tempus. Et de ista quiete famosa opposita motui successivo locutum est prius, quod oportet ipsam esse primo in tempore tanquam successivum, et dividi in membra eius 2^m^ divisionem motuum successivorum.

conclusion — that the world may *rest* — distinguishing the senses of the word. It means, *firstly* the absence of all movement, which is figuratively called repose, as opposed to toil. *Secondly*, the inaction of an agent that ceases to produce something new. *Thirdly*, the attainment of an external end to which a being tends; which may mean that a creature has all that towards which it tends, or that it still lacks many accidental ends, requisite to its perfection.

*Fourthly*, the duration in time of a being that can move, but does not.

Istis notatis, dicitur quod admisso, gracia argumenti, nullum motum successivum esse in mundo, sequitur ex hoc nullum tempus esse, et per consequens nullam quietem 4° modo dictam, sed quietem 3° modo dictam bene contingit intelligere cum necessitacione motus successivi. Illa tamen quies non esset longa vel diuturna, cum illam denominacionem habet quies a tempore. Ex quo sequitur quo talis quies compatitur secum tempus; ymo sequitur ad *esse* temporis, nec discontinuat tempora ab invicem. Ideo negandus est

Thus, if we admit that there may be no successive movement in the world, it would follow that there would be no time and, therefore, no rest in the 4th sense; but there would be rest in the 3d. Therefore rest, in the 4th sense, implies succession.

4. anthoce B. 7. figa tmecu B. 24. visus B. 33. est B.

casus in quo sequitur mundum quiescere per totum tali quiete sine successione, et ante et post moveri successive. Nam illud dictum implicaret prioritatem temporis vel nature illius quietis mundi ad successionem, et econtra; quia intellecta illa quiete mensurata solum per instans temporis indivisibile, tunc certum est quod foret instans sine successione; et illa quies inciperet et desineret esse; et cum illa quies sequitur ad mundum et ad quamlibet eius partem de quanto innititur vel tendit in deum, patet quod implicat mundum per totum incipere et desinere esse.

And as the argument implies that such rest would be prior to succession, it must be denied.

Illa ergo quies est ante omnem motum successivum B 174[a] mundi, prioritate naturali, | sed non post omnem talem motum mundi, quia non potest esse naturaliter posterior quam successivum. Nullum ergo tempus precedit illam quietem, cum dicit solam habitudinem que per se consequitur ad rem quiescentem. Et inpossibile est quod sit successivum, nisi dicat formam accidentalem, inexistenciam alicuius partis ad subiectum. Ideo illa quies non potest esse instantanea, sicud nec mundus potest pro eodem instanti incipere et desinere esse. Tunc enim esset, et per consequens tempus. Et ultra sequitur ex istis porcionem mundi durare successive; et per consequens non incipere et desinere esse; et ita forte est de qualibet parte subiecta, cum incepcio et desinicio pro eodem instanti implicat opposita primo inesse eidem subiecto formaliter pro eodem instanti. Et sic patet sequi quod quantumlibet forte agens approximatum pro primo instanti generacionis forme substancialis in materia exspectabit amplius quam per instans antequam indisposuerit materiam ad illam formam; quia aliter natura, inducens illam formam, frustra induxisset illam, et esset inpedita a sua induccione, cum agens naturale contrarium pro instanti induccionis forme ageret eque fortiter ad eius educcionem.

Such rest would be naturally prior to successive movement, could not be preceded by time, and would be neither successive nor instantaneous, for the world could not begin and end at the same instant. That would imply that opposites can coëxist in one and the same subject. And thus no agent can produce a form at the same instant it ejects the contrary from.

Et si obicitur de lineabus, instantibus et infinitis similibus, quod pro eodem instanti incipiunt et desinunt esse, dicitur quod non ex sufficienter simili argumentandum est hinc substanciam, *per se esse*, simul incipere et desinere esse, quia non requiruntur contrarie tanquam mutaciones in materia ex generacione et

If it be objected that lines, instants, &c., begin and end instantaneously, I reply that the analogy is not sufficient to prove that a substance can so do.

23. ex temporis B. 39. $\widehat{cc}$; $\widehat{ce}$(?) B.

corrupcione istorum accidencium, sicud requiritur ad generacionem et corrupcionem per se substancie. Et correspondenter dicitur quod non est possibile quod aliquid pro primo instanti sui *esse* peccet actu illicito, eo quod producens actum elicientem illum produceret et actum. Non ergo foret in potestate elicientis actum illum non elicere, vel non elicuisse illum actum et per consequens racionale esset quod non obligaretur ad denuo eliciendum illum; eo quod decretum esset a lumine obligante illum actum esse vel fuisse, et per consequens non esset in potestate obligante declinasse eleccionem talis actus; quia iam ante *esse* suum, et post. Obligacio ergo precedit tempore actum et contrarium obligacioni. Multa ergo sunt instancia ordinata regimini universi, et per consequens impossibilia [sunt] que communiter admittuntur vel propter ignoranciam vel gracia argumenti.

No one can sin in the first instant of his being, because God, producing that being then, would also produce the illicit act of sin.

All these positions, granted by ignorance or for the sake of argument, are impossible.

Ad 4$^{m}$ dicitur quod non est michi facile invenire medium ad probandum quod mundus potest una vice moveri tardius et alia vice velocius. Ideo potest dici quod necessario requiritur ad duracionem mundi successivam eque velox motus, quomodo non potest esse motus velocior, ut prius dictum est Unde negari potest assumptum in argumento, eo quod oportet mundum 2$^{m}$ aliquam eius partem esse eque velociter motum sicud aliquod potest moveri, et sicud moto a horelogio modo quo ponitur, sequens est quod mundus moveatur vel motu locali vel motu alteracionis ita velociter sicud potest. Quod si motus alteracionis non potest esse univoce velox cum motu locali (et sic mundus non eque velociter alterari potest sicut movebatur localiter), tunc oportet quod eque velociter moveatur sicud potest. Unde, sicut prius tactum est, corrupta medietate materiarum punctalium mundi, quieta materia lineari in circumferencia mundi, adhuc foret mundus eque densus, ut prius dictum est | , sed non eque magnus, B 174$^{b}$ sed in 2$^{lo}$ minor. Et ita quelibet dyameter mundi, posita uniformitate densitatis materie, foret in 2$^{lo}$ brevior, quamvis ymaginacio dicat oppositum.

(4) I cannot find any means to prove that the world moves now faster, now slower; so we may admit that regularity of movement is a necessity. Thus we deny what the argument supposes. If half the points in the world were destroyed, leaving only the circumference intact, the world would be as dense as before, but only half as large; and each diameter, seemingly as long as before, would be only half its present length.

9. adenuo B. 10. alue *pro* a lumine B; *ib.* oblite B. 11. oblite B.
15 sunt *deest* B. 25. velor B.

Correspondenter intelligendum est de A horelogio posito circumduci sine hoc quod aliqua pars mundi velociter moveatur; tunc in ea proporcione pluries volveretur in tanto tempore quam dies fuit naturalis, in qua proporcione multitudo punctorum sue circumferencie exceditur a multitudine punctorum equinoccialis, eo quod non est possibile in eodem vel equali tempore esse plura instancia quam in quocumque tempore tanto. Et per consequens non est possibile motu velocissimo mundi esse plura indivisibilia aquisita quam quocunque motu indivisibili equali. Et patet quod casus positus de horelogio, ad intencionem qua ponitur, est impossibilis. Ymaginacio autem non capit istam sentenciam; quia non ymaginatur in particulari aliquem motum ex hoc quod ymaginatur successionem temporis. Ideo credit quod, quocunque mobili vel motu signato, quod staret mobile in equali tempore moveri velocius aut tardius in quacumque proporcione signanda cum hoc tamen quod ipsum sit velocissime motum; quod tamen est impossibile, sicud in *a simili* dictum est de rarefaccione et condensacione, ut quisquam non errans in ymaginacione iudicaret tempus mensurans revolucionem A horelogii, subducto quocumque alio motu, esse tam diuturnum sicud est tempus mensurans revolucionem celi. Nec est facile vel possibile nobis in ista disputacione vere estimari in particulari lacionem temporis, nisi ex supposicione uniformitatis motus celi cum suis partibus, et ex supposicione quietis terre cum suis contentis, et experigencia capta de situacionibus astrorum per suos radios. Istis enim subductis, iudicaret agitatus motu delectabili vel aliunde soporatus, tempus esse quantumlibet breve vel insensibile, et contristatus vel tediatus quantumlibet parvum tempus esse quantumlibet longum. Ideo nullus nisi levi estimacione iudicat quantitatem temporis.

As for the hand of a clock, it would require to turn round as many times in a day as the circumference of the world is greater than that of the clock, in order for the velocity to be equal.

The case is, therefore, impossible.

Our imagination cannot comprehend how it is that a slow movement performed in an equal time with a quick one, measures time just as well.

One revolution of the hand of a clock in 24 hours takes as much time as a revolution of the sky.

We must suppose the uniformity of this movement and also the immobility of the earth:

without these, a man who enjoys himself or sleeps thinks time short, and *vice versa*.

8. pl$\overset{2}{a}$ B. 9. moto (!) B. 10. pl$\overset{2}{a}$ B. 20. assimili B 29. exp$\overset{\frown}{g}$enca B.

1—2. *Horelogio.* This word has already been rendered in the side-notes by 'clock'. Although the earliest mention of a clock that I can find is that of Henry Vic or De Wyck, made in 1379 for Charles V. of France, yet the context seems evidently to allude to a hand turning on a dial. Some of the later clepsydrae turned a hand by the dropping of water.

*Objection:* There is no time without local movement, and no first or last instant to time. But time is long as movement is divisible, according as change takes place, and the instant of time corresponds to the *being changed* in movement: there is a first instant — the *being changed*, followed immediately by a second — the *having been changed*. When at the starting point, the mobile is already in movement; when at the goal, it rests; these instants thus agreeing in nature with those which immediately follow them. It may be said: If there is movement at the very starting point, it has a certain velocity at that starting point. Thus no movement is possible at the first instant of creation. To answer this, we say that velocity, implying time, cannot be predicated of an instantaneous movement, but is that part of successive movement,

Et si obiciatur quod tempus, motus, et magnitudo, consecuntur se in divisibilitate, et per consequens nec est tempus sine motu locali, nec est dare primum instans vel ultimum temporis, sicud nec primum *mutare* vel *mutatum esse* motus: hic dicitur, ut prius, quod, si tempus eque indifferenter consequitur motum alteracionis sicud motum localem, tunc est dare magnitudinem virtutis vel latitudinis qualitatis, secundum cuius divisibilitatem est motus divisibilis et tempus duiturnum, et 2$^{m}$ divisibilitatem gradus in tali qualitate est instans temporis et *mutari* motus indivisibile. Et ita semper consecuntur se quo ad divisibilitatem, tempus, motus, et magnitudo. Et ita conceditur quod est dare primum instans *mutari*, precedens per instans *mutatum esse*. Et ultra conceditur quod est dare primum instans motus et temporis, similiter et cuiuscunque successivi est dare primum instans, et ultimum cuiuscunque successivi facti a parte post, quamvis non sit dare ultimum singulariter instans successivi. Et ultra conceditur quod mobile movetur in termino *a quo* et quiescit in termino *ad quem*, cum disposicio instantanea in talibus successivis se tenet cum sequente immediate. Sed utrobique est dare instans immediatum tali, instans in quo mobile quiescit vel movetur.

Et si dicatur quod si est motus in termino *a quo*, tunc certe est velox, | et determinatum est ipsum esse; B 175$^{a}$ ymmo, tunc non esset possibile aliquid difformiter motum quo ad subiectum simul incipere moveri secundum totum. Ymmo, pro ultimo instanti foret motus completus, et mobile tunc annichilaretur, et mobile tunc inciperet esse; etsi mobile suum inmediate post hoc crearetur. Non ergo talis motus potest esse pro instanti sue creacionis, quia tunc posset [esse] sine suo subiecto quantum ad ista et similia, patet ex dictis quod velocitas motus respicit tempus primo; et motus instantaneus non est velox. Sed adhuc indeterminatum est motum illum esse partem motus successivi. Ymmo, pari evidencia qua punctus motus primo instanti motus non pertransiret punctum suppositum, aliud autem per remocionem de presenti. Conceditur ergo quod si unum

2. fe ıdı͡ſı$^{te}$ B. 8—9. dimſı$^{tem}$ B. 18. app9 B. 19. ſin$^{r}$ B.
22. ı͡et B. 23. ı͡lı B. 26. det'$^{tu}$ B. 33. esse *deest* B. 38. pp'o B.

mobile incipiat moveri per posicionem de presenti, et esse, et moveri, unus motus esset (reliquo autem desinente removeri per posicionem de presenti) anterior per instans, et in fine temporis (anichilato uno mobili, desinente esse et moveri per remocionem de presenti) foret unus motus, reliquo diuturnior per instans. Utrobique tamen esset dare cuiuslibet talis motus, tam primum quam ultimum instans, cum sit dare instancia inmediata, et sic, pro instanti pro quo est primum *mutare*, apponit agens nisum ad transferendum punctale ultra punctale suppositum; et ista sunt per *mutari* instantaneum, quod non est motus successivus, sed eius pars prima et nuda, nec velox nec tarda, quamvis motus successivus sit secundum istam mutacionem pro primo instanti: unde tale *mutari* requirit minimum motum pro instanti proximo esse in alio situ indivisibili, sicud *quietari* requirit punctale pro instanti proximo esse in eodem situ indivisibili. Ideo est impossibile quidquam quiescere vel moveri proprie solum per instans. Nec video quomodo *mutari* posset esse instantaneum nisi sua materia foret indivisibilis, non successive aquisibilis, sed subito pro instanti quo mobile est supra illa, et in proximo instanti super indivisibili sibi proximo. Sic enim est dare terminum *a quo*, et terminum *ad quem*, cum *mutari* respicit futurum, sicud *mutatum esse* respicit preteritum. Non quiescit mobile pro proximo *mutato esse* post motum et non pro ultimo *mutari* proximo precedente. In materia autem de acquisicione situum inmediatorum consequenter secundum processum instantaneum deficit ymaginacio nec . . . . . quia virtus materialis est non potens capere nisi sensibiliter divisibile; [quod] non est instans, vel situs punctalis; et quelibet talia sunt que racio convincit esse ponenda.

since the mobile, during that instant, remains still in the same point of space. Explanation of how the mobile passes from the first point of space to the next;

effort of the motor agent to pass the mobile from one point to the next.

The punctal movement in the first instant is neither slow nor rapid; neither rest nor movement is, therefore, properly instantaneous.

But when we think of a mobile passing from one point to the next, our imagination fails, being a material faculty.

Ad 5$^{m}$ dicitur quod assumptum est impossibile, cum quies temporalis coexigit motum successivum; nec dubium quin impossibile sit permanens fieri successivum vel econtra, ut bene tangitur. Quamvis autem de perfeccione rei sit quiescere, et quies sit generaliter finis motus, non tamen potest illa perfeccio competere cuicunque, sed mundus potest esse in sua perfeccione cum

We deny that the world could have been immovable after its creation. Rest is a perfection in general, but a perfection that

10. visum B. 13. inda B. 14—15. pp B. 28. p̃te B. 30. *after* nec *a very illegible word* B. 32. quod *deest* B. 35 ,m B.

does not belong to all things; the world could be perfect, and yet move.

hoc quod continue moveatur; nec, posito quod esset plene perfectus quo ad numerum hominum, et cessante omni generacione substancie, foret ornatus in disposicionibus corporis ad eius ultimum, et homines circulariter tenderent in deum modo quo dictum est. Quod si queratur utrum sit impossibile omne individuum racionalis nature fellicitari et tendere in deum suum sine motu successivo concomitante, dicitur quod iam hoc modo est inpossibile. Sed admitto, gracia argumenti, quod sit | possibile pro inicio mundi; et tunc B 175b concedo quod non foret tempus; nec vere enunciaretur de aliquo quod ipsum fuit vel erit; sed totum foret *esse*, sicud est in eternitate; nec scimus loqui secundum istam disposicionem mundi, quia instans incepcionis mundi foret eius tota duracio, non successiva, sed permanens, ut aliquandiu foret mundus tunc, sicud nec semper. Sed amotis omnibus adverbiis temporis, et mundus est, et permanent sine defectu vel desinicione alicuius partis sue.

Is it impossible for all men to be happy without successive movement?

It is now; but if we admit that it was possible when the world began, then, Time would not have been.

How can the world have begun, since it is to be eternal?

Its dependency on another and its past non-being infers its non-being in the future.

Sed difficultas est quomodo exponendo mundus eternalis incepit esse. Videtur enim pari evidencia qua mundus desinit esse; quia, sicud est efficienter ab aliquo, et non fuit, ita est efficienter ab alio et non erit. Et si fit, tunc subito fit, et per consequens faccio est subita; et cum nullum subitum potest esse permanens, sequitur quod faccio illa desinit esse. Nam, incipiente tempore, desinit esse; nec tempus ipsam corrumperet. Ergo, subducto tempore, desinet sic esse. Vel, si dicatur quod faccio illa sit eterna, cum necessario deus facit de quanto conservat mundum, loquitur de faccione subita vel incepcione mundi. Et tunc non occurit michi promptus modus explanandi me in ista materia. Ideo transeo pro presenti, concedens, ut alias, quod necesse est tempus semper esse. Hoc tamen tangit non modicum dubium loycale.

I am not prepared to explain myself on that head now, but merely affirm that time is for ever.

Whether the *non being* of the world preceded its *being*.

*Arguments pro.*

1. Creation is the bringing of a creature from pure *non-being* to

Sed, mundo creato, *non esse* eius precessit suum *esse*. Et videtur quod sic, primo, ex hoc quod creacio sit produccio creati de simpliciter *non esse* ad *esse*. Aliter enim non haberet creacio terminos *a quo* et *ad quem*

7. tellita'i B. 21. eternaliter B; *ib.* p⁹ B. 23. effit B. 32. modo; *ib.* et *pro* in B. 34. non tangit non (!) B. 36. processit B.

4—5. *Circulariter*. See above, p. 270.

nec posset bene describi differri ab aliis speciebus motuum, vel a generacione naturali, et a faccione artificiali. Nam [cum] in generacione naturali factum a natura non sit de nichilo, sed ex materia, que est eadem substancia cum producto; sicud in opere artis humane non sit alia substancia, sed artificiosum per generacionem forme artificialis, sicud in opere nature sit compositum naturale per generacionem forme substancialis: si ergo creati *non esse* precessit eius *esse*, sequitur quod creatura nunquam talis aliquando non fuit.

being; one the starting point, the other the goal. This is the only good definition by which it is distinguished from all other productions and changes.

Item, quidquam deus fecit, eternaliter preordinavit; eternaliter ergo preordinat mundum et eius faccionem. Assumptum patet ex hoc quod aliqua preordinavit, quia aliter tolleretur eius providencia. Et idem est iudicium de quolibet facto suo, cum nichil potest ignoranter vel improvide facere. Cum ergo non potest esse alicuius nova ordinacio in deo, quin eternaliter ordinavit illud facere, sicut scit illud fore, sequitur quod aliquid fuit factum a deo, preordinacio dei, et cuius *non esse* fuerit eternaliter. Non enim stat *esse* ordinati cum dei preordinacione; ergo oportet preordinacionem inferre *non esse* illius cuius est preordinacio.

2. Every thing was preordained by God; now preordination infers the non-existence of that which is pre-ordained.

Item, deus fuit eternaliter sciens mundum esse creandum, qualiter racio ydealis mundi non fuisset eternaliter precedens eius *esse*. Vel ergo pro illa mensura fuit *esse* mundi vel eius non *esse:* si eius *esse*, tunc non fuit creandus, quod est inopinabile, cum deus non potest facere quod non est faciendum. Et consequencia patet, ex hoc quod, si aliquid est, tunc illud non est faciendum, sed factum. Nisi ergo pro aliqua mensura foret *posse esse* mundi, vel eius futuricio sine eius *esse*, non esset mundus possibilis a principio sue creacionis. B 176ª Et si pro aliqua mensura sit futuricio vel | possibilitas rei sine eius *esse*, tunc est cum eius *non esse*, cum alterum contradictoriorum concomitatur quodlibet.

3. Before Creation, the world was known by God as *to be created*. Then there was the *non-existence* of the world; for it the *existence*, God could not know it as to be created.

In ista materia sic tetigi. Prius, verisimile est logico quod *non esse* mundi nunquam fuit, cum semper fuit *esse* mundi; nec fuit *non esse* mundi formaliter in eternitate; quia tunc esset eternum. Ymmo tamen omne quod fuit vel erit, est: patet quod *non esse* mundi est,

I think it may be asserted that the non-being of the world never was, and that its being was always; and if its *non-being* was in

3. cum *deest* B. 14. *After* providencia nid'e B. 32. sui creacio B.
36. p̄us B. 39. tp̄ B.

eternity, it would have been eternal. Yet its non-being, if it was, could not be otherwise than in eternity; for it never was in time.

et non in tempore, si fuit ante mundum: quod est impossibile, cum deus et omne quod est est in tempore. Ymmo, si pro primo instanti mundi sit verum quod *non esse* mundi fuit, tunc est verum quod deus fuit; quod est inprobatum.

So I say to the *first* argument that the proper definition of creation is a making out of nothing, and creation presupposes no starting-point.

Ad primum dicitur quod creacio est faccio ex nichilo; et quelibet alia faccio est faccio ex aliquo, quia ex materia. Nec est verum quod terminus *a quo* cuiuslibet creati fuit, cum primum creatum in tempore fuit sine termino *a quo*. Sed quodlibet posterius creatum habet terminum *a quo*, hoc est, *non esse* suum precedit in instanti *esse* suum. Nec est logico facile exprimere faccionem mundi, cum semper deficeret in docendo quid sit, quam deus vel pocius alia veritas eterna.

To the *second*, that the futurition of the world was ordained in eternity, i. e. at a period when the world could not be;

Ad 2$^{m}$ dicitur quod assumptum est inpossibile, cum non sit possibile deum preordinasse produccionem prime creature, nisi per instans primum cuius est, futuricio non fuit, nec potencia ante actum (saltem anterioritate temporali); quamvis forte futuricio mundi, sicud et cuiuscumque alterius rei, sit eterna a parte ante, nec alia est futuricio, cum res fuerit et alia antequam fuerit, et sic futuricio prime creature est eterna, et per consequens in mensura pro qua non potest fore *esse* illius creature; et tanta est sine *esse* illius creature pro illa mensura; sed est continue cum *esse* illius creature in tempore existente. Et ita intelligunt illi qui ponunt quod necessario, si est creatura, tunc *non esse* illius creature eternaliter precedit eius *esse;* hoc est, *fore esse* eius pro aliqua mensura naturali eterna, pro qua non est eius *esse*. Conceditur ergo quod ordinacio dei est instantanea, cum requirit ordinatum, et preordinacio dei precedit, si quidquam facit, non eternaliter, nec tempore inparcialiter, sed naturaliter. Non enim preordinat vel ordinat deus quod primum instans vel prima creacio erit, sed preordinat illud esse et non fore; quia nec fuit nec erit eius *fore*.

this knowledge of God is without the existence of the world in so far as it is eternal; as it corresponds to time, it is simultaneous with its existence. God's preordination precedes what He makes, not in eternity nor time, but in nature: for God preordains a thing to *be*, not *to be in the future*.

To the *third*, that *creandus* signifies either to be about to be created, or to be worthy of creation.

Ad 3$^{m}$ dicitur quod hoc participium *creandus*, potest connotare futuricionem, vel dignitatem ut creetur vel sit creatus. Ad primum sensum patet quod falsum assumitur. Et in 2$^{o}$ sensu patet quod mundus iam est

2. dem$^{9}$ *before* deus B. 4. e'e' B. 11. aliquo (?) B. 14. q, fit q$^{3m}$ B. 20. app$^{\mu}$ B. 24. tenta, te$^{uta}$? B. 27. est *pro* esse B. 33. inpa$^{r}$ B. 39. secundum B.

creandus; hoc est, est dignus esse creatus ex bene placito creantis. Mundus ergo, et non eius futuricio ante actum, habet racionem ydealem eternam, priorem naturaliter mundo. Et illam racionem nunquam concomitabatur *non esse* mundi, sed fuit eternaliter sine *esse* mundi pro illa mensura; non cum *esse* mundi pro illa mensura, sed non fuit cum *non esse* mundi.

In the first sense, the world never was *creandus;* in the second, it is *creandus* even now. The ideal of this world was never accompanied by its non-existence, but was merely without its existence.

Innumerabilia autem dubia continencia materias hic superficialiter salutatas possent emergere. Sed considerans quod ultra sensum primum propositum vel capacitatem sepius evagabar, decrevi tempus exigere cum isto tractatu de temporalibus ab anxio scrutinio
B 176b veritatum huiusmodi | parumper desistere, finem tocius operis quiecius inponendo, etc.

There are innumerable other questions concerning these matters; but I have already strayed too far beyond what I first intended; so I bring this work to a close.

Et sic est finis Tercii tractatus Magistri Johannis Wicleff, Doctoris Evangelici, cuius anima habeat eterne visionis iocunditatem. Fideliter correctus, etc.

1. ee' B. 4. mundum B.

17. The editor may perhaps be excused here for saying that he thinks the two last words ought, for truth's sake, to have been omitted.

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## Errata.

Two unfortunate circumstances — one due to my sending to press by mistake a sheet which required further revision, and the other to my too great haste in assuming the correctness of a reading which a note from Mr. Matthew afterwards showed me to be wrong — render necessary the unusual course of inserting a list of errata in this Volume. As, however, 'to err is human', the reader will perhaps exercise the divine attribute of forgiveness, not only as regards these mistakes, but others which I have discovered on going carefully through the volume.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| P. | 7, | *foot note*, | l. | 2, | *omit* | cleaver | *supply* clearer. |
| „ | 8, | „ | „ | 1, | „ | verbol | „ verbal. |
| „ | 11, | *side-note*, | „ | 26, | „ | natural | „ *natural.* |
| „ | 12, | text, | „ | 7, | „ | necessitata | „ necessitate |
| „ | 20, | side-note, | „ | 31, | „ | false we | „ false. We |
| „ | 32, | „ | „ | ult., | „ | that. | „ that |
| „ | 35, | foot-note, | „ | 2, | „ | continence | „ contingence |
| „ | 48, | side-note, | „ | 26, | „ | concluse | „ include. |
| „ | 63, | text, | „ | 37, | „ | spongio | „ spongia |
| „ | 64, | side-note, | „ | ult., | „ | element, | „ element |
| „ | 65, | „ | „ | 25, | „ | experience | „ experience; |
| „ | 66, | text, | „ | 39, | „ | multas implicia | „ multa simplicia |
| „ | 84, | „ | „ | 10, | „ | aërum | „ aërem |
| „ | 98, | foot-note, | „ | 1, | „ | sentence. I | „ sentence, I |
| „ | 99, | text, | „ | 23, | „ | pausant | „ pausat |
| „ | 101, | „ | „ | 12, | „ | puidditate | „ quidditate |
| „ | 108, | „ | „ | 27, | „ | punctualium | „ punctalium |
| „ | 111, | side-note, | „ | 23, | „ | inaminate | „ inanimate |
| „ | 112, | „ | „ | 27, 28, | „ | and the midriff(?) | |
| „ | 112, | text, | „ | 28, | „ | mitricori | „ nutriciori |
| „ | 112, | *omit the whole of the foot-note to l. 28.* | | | | | |
| „ | 112, | text, | l. | 8, | *omit* | individuacionem | „ individuaciones |
| „ | 112, | „ | „ | 29, | „ | venibus | „ venis |
| „ | 112, | „ | „ | 36, | „ | aparentibus | „ a parentibus |
| „ | 112, | „ | „ | 28, | „ | subtili, a quo | „ subtili a quoso |
| „ | 113, | „ | „ | 11, | „ | mitriti | „ nutriti |
| „ | 113, | „ | „ | 20, | „ | animam | |
| „ | 113, | „ | „ | 38, | „ | alimenta | „ alimenti |
| „ | 113, | side-notes | „ | 17, 18, | „ | of the midriff | |
| „ | 114, | text | „ | 1, | „ | temperancia | „ temperancie |
| „ | 115, | „ | „ | 3, | „ | dissolveretur | „ dissolverentur |
| „ | 116, | „ | „ | 23, | „ | collectim, omnes illas | „ collectim omnes illas |
| „ | 116, | „ | „ | 34, | „ | procedere per | „ procedere. Per |
| „ | 116, | „ | „ | 36, 37, | „ | generatam. Est | „ generatam est |
| | | | „ | 37, | „ | privacio, quo | „ privacio. Quo |
| „ | 117, | „ | „ | 33, | „ | constancium. Sed | „ constancium: scilicet |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| P. | 117, | text, | l. | 35, | *omit* | habent | *supply* habet |
| „ | 118, | „ | „ | 30, | „ | plus. Et | „ plus et |
| „ | 118, | side-note, | „ | 17, | „ | by | „ as to |
| „ | 119, | text, | „ | 39, | „ | considerantes, | „ considerantes |
| „ | 120, | side-note, | „ | 27, | „ | supperadded | „ superadded |
| „ | 123, | text, | „ | 10, | „ | verum | „ verbum |
| „ | 125, | side-note, | „ | 7, | „ | ginger | „ galangal |
| „ | 126, | text, | „ | 30, | „ | aut | „ sunt |
| „ | 126, | „ | „ | 31, | „ | coningaciones | „ coniungaciones |
| „ | 127, | foot-note, | „ | 3, | „ | non living | „ non-living |
| „ | 128, | side-note, | „ | 8, | „ | big | „ *big* |
| „ | 129, | text, | „ | 7, | „ | aliud | „ aliquid |
| „ | 130, | „ | „ | 5, | „ | tamen | „ tantum |
| „ | 130, | „ | „ | 7, | „ | aquum | „ aquosum |
| „ | 130, | „ | „ | 8, 10, | „ | violentum | „ violentatum |
| „ | 137, | „ | „ | 16, | „ | non | |
| „ | 137, | foot-note, | | | | Dr. Poole | „ Mr. Harris |
| „ | 140, | text, | „ | 3, | „ | cum | „ tum |
| „ | 154, | „ | „ | 8, 9, | „ | cappam | „ cappa |
| „ | 154, | side-note, | „ | 28, | „ | or | „ for |
| „ | 187, | text, | „ | 16, | „ | maligna | „ magna |
| „ | 188, | „ | „ | 38, | „ | vel fuit erit | „ erit vel fuit |
| „ | 194, | side-note, | „ | 35, | „ | a | „ the |
| „ | 196, | text, | „ | 33, | „ | locatum | „ locutum |
| „ | 197, | „ | „ | 11, | „ | dicit | |
| „ | 201, | „ | „ | 31, | „ | cerebro | „ crebro |
| „ | 201, | side-note, | „ | 31, | „ | and in the brain | |
| „ | 202, | text, | „ | 8, | „ | abscuritas | „ obscuritas |
| „ | 202, | „ | „ | 9, | „ | sic | „ sit |
| „ | 202, | „ | „ | 40, | „ | corrupcionem, | „ corrupcionem |
| „ | 207, | „ | „ | 7, | „ | quem | „ que |
| „ | 208, | „ | „ | 16, | „ | tenebrem | „ tenebre |
| „ | 208, | „ | „ | 19, | „ | notum | „ motum |
| „ | 208, | „ | „ | 26, | „ | figuratam | „ figuratum |
| „ | 211, | side-note, | „ | 3—10, | „ | What—time | „ The seasons and such other divisions of time are accidental, not essential. |
| „ | 219, | side-note, | „ | 34, | „ | from | „ form |
| „ | 226, | text, | „ | 17, | „ | est, | „ est |

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